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Manual for Health Worker Male

Directorate General of Health Services, Ministry of Health & Family Welfare

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Community Health Cell
Library and Documentation Unit
BANGALORE

MANUAL FOR HEALTH WORKER MALE

DIRECTORATE GENERAL OF HEALTH SERVICES
MINISTRY OF HEALTH & FAMILY WELFARE
GOVERNMENT OF INDIA
NIRMAN BHAVAN, NEW DELHI

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FOREWORD

In Order to attain the goal of 'Health for All by 2000 AD' the National Health Policy endorsed by Parliament in 1983 lays stress on the preventive, promotive, and rehabilitative aspects of health care. It seeks to provide primary health care services to those in the remotest areas of the country. Emphasis is laid on regarding health and human development as a vital component of overall socio-economic development, decentralizing the system of health care delivery, and ensuring adequate nutrition, safe drinking water supply and improved sanitation, with maximum community and individual self-reliance and participation.

The Health Worker Male at the Subcentre has an important role to play in putting all these ideals into practice. In the course of his training he will acquire the knowledge and skills necessary for delivering effective health care services to the community under his care.

The Manual for Health Worker Male is designed to help the Health Worker Male during his training and to serve as a guide during the course of his work.

The first edition of this work manual was published in 1977 with financial assistance and expert advice from the World Health Organization. Since then, several changes have been introduced in the health and family welfare programmes and the health workers have been given additional responsibilities. All these changes have been incorporated in this revised edition of the Manual. In addition, valuable comments and suggestions received from officers of the Ministry of Health & Family welfare and Directorate General of Health services, and from training institutions and individuals at national and state levels have been taken note of.

It was felt that the Manual would become more attractive and readable if the text could be reduced and simplified, and the number of illustrations were increased and presented in a more lively form.

We hope the health workers at the Subcentres will not only find this new version of their work manual useful in carrying out their responsibilities, but will also enjoy reading through it and carrying out the exercises suggested in each chapter.

New Delhi

Dr. G.K. Vishwakarma
Director General of Health Services

ACKNOWLEDGEMENTS

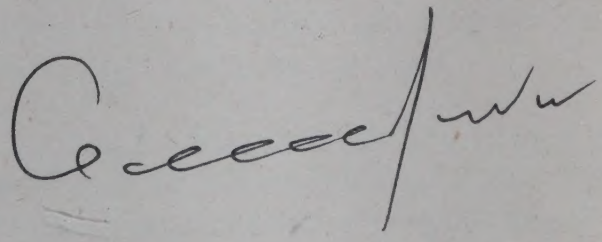
The revision of this Manual has been carried out by Dr. Sarah Israel.

The Illustrations, layout and cover design for the Manual have been prepared by Miss Bharati Mirchandani.

Most of the illustrations for this Manual have been re-drawn from manuals and flipbooks published over the last ten years by the Ministry of Health & Family Welfare. The ideas for many others have been taken from '**Where There is No Doctor**' by David Werner (adapted for India by the Voluntary Health Association of India. 1980). In the preparation of some illustrations, '**Primary Child Care**' by Maurice King, Felicity King and Soebagio Martodipoero (Oxford University Press, 1978) and '**A Guide-book for Anganwadi Workers**' (Ministry of Human Resource Development, 1986) have been used as references.

We are grateful to all those who have worked tirelessly behind the scene to make this publication possible against all odds.

We are grateful to the World Health Organization for the financial assistance provided for the preparation and publication of this Manual and for their interest in this project.



New Delhi

DR. A. Mazumdar
Dy. Director General (Rural Health)
Directorate General Health Services

None of us can attain perfection,
but we can all strive to achieve it.

HOW TO USE THIS MANUAL

This work manual is meant for you to study carefully during your training, read again after training and refer to whenever necessary in the course of your work

The Manual consists of five **parts**, each of which is divided into **chapters**. Under each chapter there are several **subheadings.** In some chapters additional materials or **annexures** are included at the end of the chapter.

Part I working with Others(Chapters 1-4) : discusses the need to coordinate your activities with those of your colleagues and to work in harmony with the Health Guides, other village level workers, and the community for which you are responsible.

Part II community Health (Chapters 5—8) : describes the various health hazards present in a rural environment and how they can be handled. This will enable you to plan your programmes for health education regarding safe water, hygienic disposal of wastes and, especially in schools, the importance of personal hygiene.

Part III Family Welfare (Chapters 9—13) : Discusses the provision of maternal and child care, family planning, nutritional care and education, and immunization as an integrated package of services, You and the Health Worker Female must coordinate your efforts very closely in order to implement an effective family welfare programme.

In Chapter 11 the questions commonly asked by couples about contraceptive methods are listed and simple answers to these questions are given.

Part IV Communicable Diseases (Chapters 14—18): dscribes how various diseases spread so that you will know how they can be prevented and controlled. It tells you how to recognize the important infectious diseases and what action to take in case of an outbreak.

Part V Primary Medical Care (Chapters 19—25) : The recognition of common minor ailments and emergencies and how to deal with them are given in tabular form in Chapters 24 and 25. Some of the general procedures which you would need to know in order to treat minor ailments and provide first aid in emergencies are also included in Part V.

Remember that this part of the Manual is not meant to turn you into a doctor. It is meant to help you to treat those conditions which do not need special attention to deal with emergencies until medical assistance is available and to know when to refer cases to the Primary Health Centre. You must be very cautious in prescribing and dispensing drugs for infants and young children. It is important to refer children below five years as early as possible to the MO PHC, as children in this age group tend to become seriously ill very rapidly.

Instructions for preparing simple visual aids from easily available materials are included in **Appendix 1** to the Manual.

There are number of **illustrations** in the Manual. They are meant to make the Manual more easy to understand and more interesting to read. You can trace or enlarge some of the pictures to prepare your own visual aids in the form of charts, flash cards or flannelgraphs for use in your health teaching activities.

At the beginning of the Manual is a **table of contents**. This lists the topics under each part, chapter and subheading. The opening page of each part lists the chapters contained in that part.

Wherever **Cross references** are made, the chapter number and/or page number is indicated.

At the end of each chapter is a list of **things to do.** Try to carry out each of these activities. They will help you in your work.

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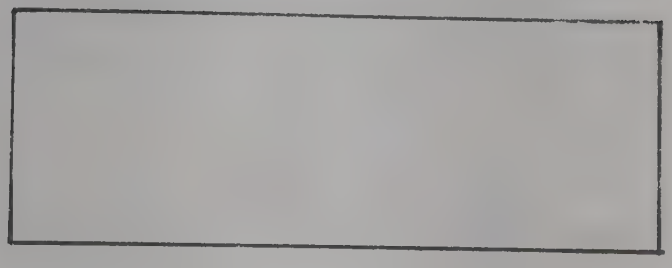
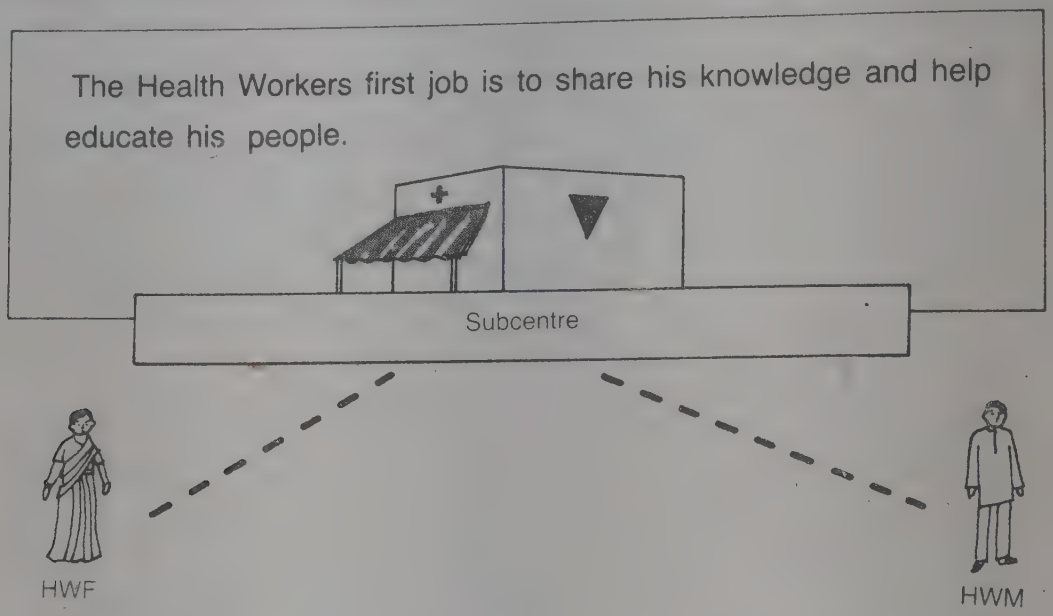
PART I

WORKING WITH OTHERS



Chapter 1 What is your Job?
Chapter 2 Working in a Team
Chapter 3 Working with the Community
Chapter 4 Keeping Records

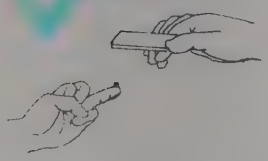


As a Health Worker at the Subcentre you are responsible for the health of the people in your area. This means you must help them make the area a healthy place to live in. You must teach them how to keep healthy and help them when they are sick.

Your responsibilities are described in detail in the different chapters of this Manual. However, you have eight main jobs. These are as follows.

1. Prevention and Control of Communicable Diseases

Malaria



* Identify fever cases.
* Take blood smears.
* Give presumptive treatment to all fever cases.
* Give radical treatment to all positive cases.
* Help in spraying operations.

Leprosy

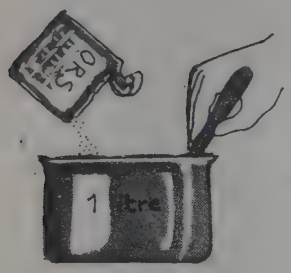
* Identify cases with skin patches and loss of sensation.
* Take skin smears.
* Ensure that positive cases take regular and complete treatment.

Tuber-culosis

* Identify persons especially 15 years and above with prolonged cough or spitting blood, and refer these cases to the MO PHC for further investigation.
* Ensure that positive cases take regular and complete treatment.

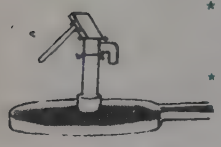
Other diseases

* Identify cases of diarrhoea/dysentery, fever with rash, jaundice, encephalitis, diphtheria, whooping cough, tetanus and conjunctivitis.
* Inform the Health Assistant Male about these cases.
* Take measures to prevent the spread of these diseases.
* Give Oral Rehydration Solution to all cases of diarrhoea/ dysentery and vomiting.



* Refer anyone with a genital sore or urethral discharge to the MO PHC.
  Refer all cases of blindness including suspected cataract to the MO PHC.
* Help the Health Assistant Male to destroy stray dogs in the area.
* Educate the community about the prevention of communicable diseases and the need to take regular and complete treatment.

2. Environmental Sanitation



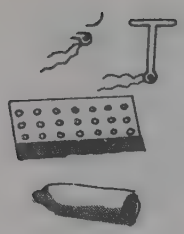
* Chlorinate public water sources at regular intervals.
* Educate the community about the hygienic disposal of liquid and solid wastes.
* Encourage people to construct and use sanitary latrines and smokless chulhas.

3. Immunization Programme

* Vaccinate all infants and children in your area against Tuberculosis, Diphtheria, Whooping Cough, Tetanus, Poliomyelitis and Measles.
* Help the Health Worker Female to give tetanus toxoid to all pregnant women in your area.
* Help the Health Assistant Male to immunize all school children in your area.
* Tell people how important it is to immunize their children against diseases.

4. Family Planning

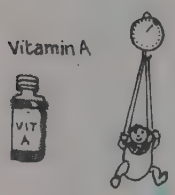
* Help people realize the need to have a small family.
* Encourage all eligible couples to use a contraceptive or undergo sterilization.
* Distribute nirodh and other conventional contraceptives to those who want them.
* Assist those who want sterilization to have the operation done.



* Help those with side effects after sterilization to get the necessary treatment.
* Involve community leaders, teachers, Health Guides and other community workers in promoting the family welfare programme.

5. Child Care and Nutrition

* Tell people about the importance of maternal and child care and encourage them to use these services.
* Educate people about nutritious diet for mothers and children, using locally available foods.
* Identify and treat malnourished children or refer them to the anganwadi or PHC.



* Distribute iron and folic acid tablets to children, pregnant women, nursing mothers and family planning acceptors.
* Give vitamin A solution to all children one to five years old.

6. Recording Vital Events

* Record any births and deaths which have taken place in your area.

7. Primary Medical Care

* Treat those who have minor ailments.
* Give first aid in any accident or emergency.
* Refer cases which you cannot deal with to the PHC or nearest hospital.

8. Team Work

* Attend staff meetings at the PHC and Community Development Block.
* Work closely with the Health Worker Female and other health workers in the area including the Health Guides and trained dais.

All these services need to be delivered as an integrated package of family health care.

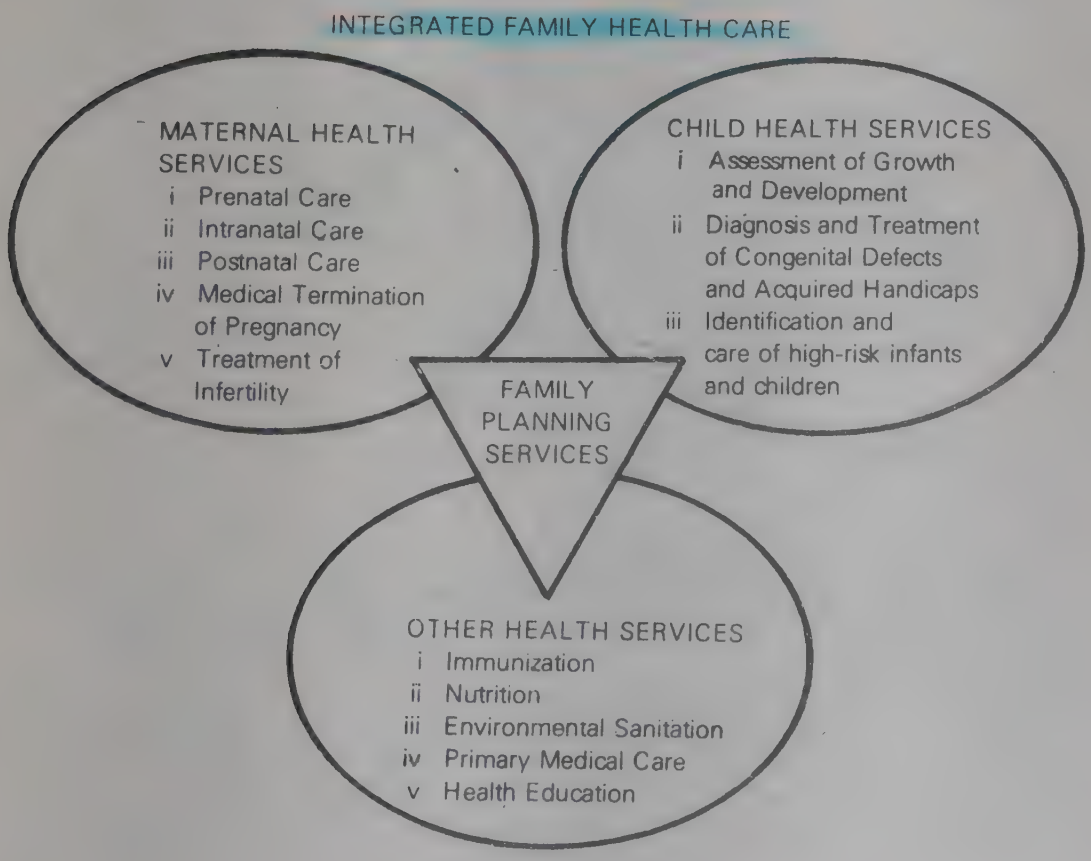
To carry out these activities effectively, a good health worker must have certain qualities. He must -

* be kind
* be responsible
* be honest
* be interested in health and community work
* be eager to learn and open to new ideas
* understand and respect people's beliefs and traditional practices
* know his area.

Things to do

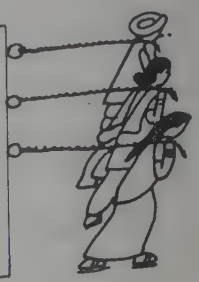
1. Go through your diary for the past one month. How many of the eight jobs mentioned in this chapter have you done in this month? List the various activities under each job that you have carried out.

2. At the end of this chapter some of the qualities of a good health worker are listed. There are many more which he should have. Can you think of some?


INTEGRATED FAMILY HEALTH CARE
MATERNAL HEALTH SERVICES
i Prenatal Care
ii Intranatal Care
iii Postnatal Care
iv Medical Termination of Pregnancy
v Treatment of Infertility
CHILD HEALTH SERVICES
i Assessment of Growth and Development
ii Diagnosis and Treatment of Congenital Defects and Acquired Handicaps
iii Identification and care of high-risk infants and children
FAMILY PLANNING SERVICES
OTHER HEALTH SERVICES
i Immunization
ii Nutrition
iii Environmental Sanitation
iv Primary Medical Care
v Health Education

CHAPTER 2 WORKING IN A TEAM

Team work requires that
— the right things are done
— in the right place
— at the right time
— in the right way
— by the right people.



You and the Health Worker Female are both members of the health team in the block. You are the members of the team closest to the community and will be responsible for helping the community to keep healthy.

You must coordinate your activities with:
— the Health Worker Female (HWF),
— the Health Assistant Male (HAM)
— other members of the health team.

Working with the Health Worker Female

You can to this in the following ways:

i. Plan your activities together. This will avoid duplicating your work. Ensure that you and the HWF spend about fifteen minutes at least once a week to assess the week's work and plan the work for the next week.

ii. Exchange information on your activities. For instance, although the Eligible Couple and Child Register is maintained by the HWF, you must also supply her with information so that the records are kept up to date. This information is used by both of you to carry out the family welfare programme.

iii. Organize combined activities. Involve other concerned workers and interested persons wherever possible.

iv. Combine your activities in time of crisis, e.g. in an epidemic outbreak, carry out vaccination as a team.

v. Follow up each other's cases during home visits. This can avoid duplication.

vi. Cooperate in the preparation of reports, records, charts, and maps.

During your meetings with the Health Worker Female:

* Find out if she has come across any fever cases, cases of cough lasting for two weeks or more, or suspected cases of leprosy.

* Find out if she has come across any families who want to have their wells chlorinated, plant a kitchen garden, construct a sanitary latrine or make a soakage pit.

* Refer to her any pregnant women or infant whom you feel needs special care, or those cases which cannot be handled by the dai.

* Refer to her those eligible couples where the wife requires motivation for family planning or is willing to accept advice.

* Check whether all pregnant women in the area have been covered by immunization with tetanus toxoid.

* Check whether all infants in the area have been covered by immunization with BCG, DPT, Polio and Measles vaccine (if available).

* Check whether all school children in the area have been covered by immunization with DT, TT and Typhoid vaccine.

* Bring the register of births and deaths and the Eligible Couple and Child Register up to date.

* If any special programmes such as group meetings or surveys are to be carried out, you and she should plan these together.

* Discuss with her any problems you encounter with the dais or Health Guides, so that steps can be taken to solve these problems.

Working with the Health Assistant Male

Your supervisor will visit you at least on one day a week. He will spend the whole day with you. He will guide you in your work and will help you to improve your knowledge and skills.

The HAM has certain specific activities assigned to him such as giving radical treatment to malaria cases and immunization of school children. You are expected to help him in these tasks.

You can coordinate your activities with the HAM in the following ways :

i. When you plan your activities, consult your supervisor. He may need your help in delivering some of the programmes. He should know where to find you in case of emergency and vice versa.

ii. Review the week's programme with your supervisor. Discuss any problem cases or situations related to your work for which you require assistance.

iii. Visit with your supervisor problem cases which you could not tackle on your own.

iv Make use of your supervisor's visit to improve your knowledge and skills. Do not hesitate to ask for help from your supervisor. He is there to guide you and lead you in your work.

v. Take the necessary action suggested by your supervisor.

vi. Prepare the community or the schools for programmes which your supervisor will be carrying out. Bring the community members together to accept the programme. This will help to achieve success.

vii. Assist your supervisor in performing immunizations in schools, and in education for sanitation programmes.

viii. Keep your supervisor informed of positive malaria cases who require radical treatment.

ix. Inform your supervisor about cases of tuberculosis or leprosy who are not taking regular treatment.

x. Alert your supervisor and seek his advice and assistance if there is an outbreak of an epidemic, such as cholera, conjunctivitis or jaundice.

xi. Inform your supervisor if there are many stray dogs in the area and assist him in carrying out destruction of stray dogs.

Working with other members of the health team

These activities include the following:

i. Staff meetings at the Primary Health Centre and Community Development Block. These meetings will help you to know what programmes are going on or what are being planned in the block.

ii. A monthly meeting of the Health Assistants Male and Female with the Health Workers Male and Female—
   — to review the activities in the Subcentre during the month;
   — to plan forthcoming activities.

iii. Periodic meetings of the Health Assistants and Health Workers with the community leaders and Health Guides (HGs)—
   — to help achieve understanding and acceptance of the health programme;
   — to involve the HGs and community leaders in planning activities. This will help in getting full community participation.

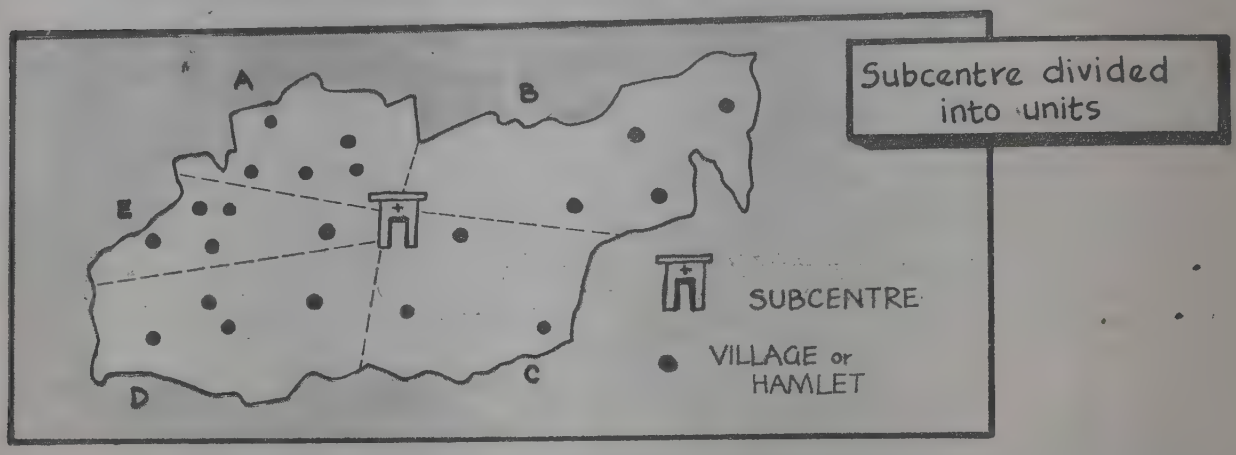
iv. Visits by the Medical Officer from the Primary Health Centre. The doctor from the PHC will visit the Subcentre at least once in a month. You should try to get the maximum benefit from this visit. Ideally, the doctor's visit should coincide with the HAM's visit. Before the doctor's visit you should;
   — plan for this visit in advance with your supervisor;
   — prepare a list of anything you want to ask the doctor;
   — arrange for the doctor and your supervisor to meet the community leaders;
   — arrange for the doctor and your supervisor to visit areas with health problems;
   — inform patients who need to be seen by the doctor about his / her visit and ask them to be present at the Subcentre at the right time.

Planning for the delivery of integrated family health care

You should plan your work so that you can deliver integrated family welfare services regularly to the families who live in your area. Planning should be done daily as well as at the beginning of the week or month. Plan your activities so

that those families with special needs, e.g. where there are malnourished young children, are seen and given the required care.

Take the following steps in planning your work:



i. With the assistance of the HAM divide your area into four or five units of approximately 800 to 1000 population each. Each unit should, as far as possible, consist of villages that are within 30 to 45 minutes walking distance of each other.

ii. With the help of the HWF carry out a health survey of the villages in your area (See Chapter 3). In this way you will be familiar with the health problem in each village.

iii. Review the health data which have already been collected for each village so that you know the resources which are available, i.e. the name and location of HGs, trained dais, indigenous medical practitioners, transport facilities, etc.

Making a work plan

Make yourself a monthly work plan and enter in it all the activities in which you will be involved. A sample work plan is given at Annexure 2.1. When you are planning your work for the month keep the following points in mind :

i. Enter all clinics, special camps, campaigns and meetings which are to be held during the month.

ii. Enter any holidays which will be observed.

iii. Allot a regularly scheduled day or part of a day to each of the four or five units in your area. However, you may have to change this if a special need for services arises, e.g. family planning fortnight, an eye camp, or an outbreak of gastroenteritis. Set aside two or three days each month for carrying out missed visits.

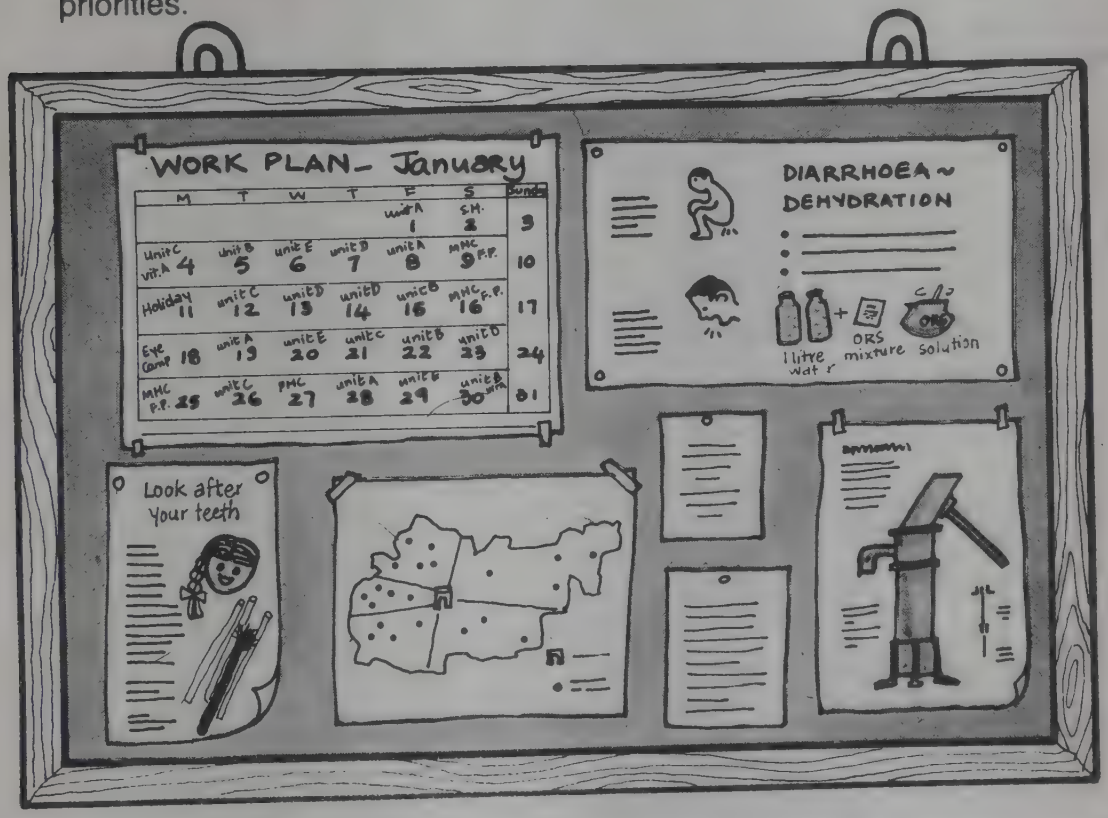
iv. Schedule meetings and joint home visits with either the MO PHC or the HAM on the days when they visit the Subcentre.

v. Set aside some time each week for meeting with the HWF.

You should make two copies of your monthly work plan. Send one copy through your supervisor to the MO PHC. Pin one copy on the notice board of the Subcentre so that you can be located in an emergency.

When you are planning your daily schedule, keep the following points in mind:

* List the families to be visited in each unit in order of their service priorities.



* Remember to keep some time in each village visited for meeting the HGs and village leaders.

* Leave sufficient time each day for travel to the villages in the unit, recording of health data, and replenishment of your kit bag.

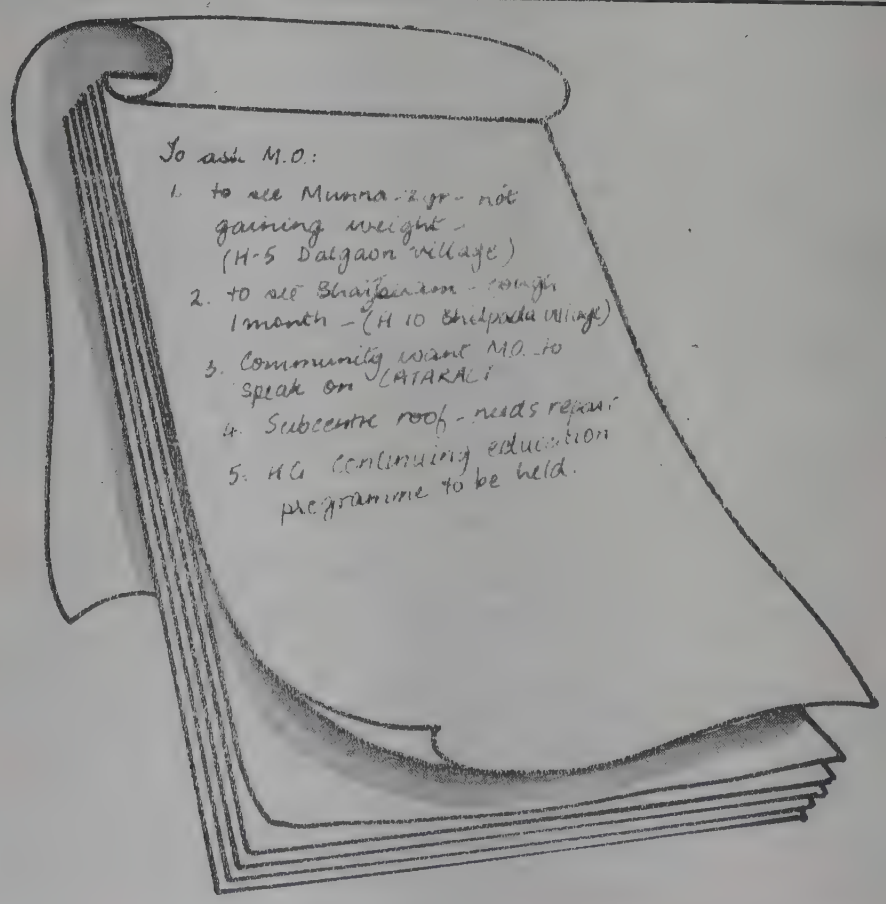
* At the end of each day, reschedule the work which you were not able to carry out for some reason, e.g. if a situation which required your immediate attention had arisen.

* Make a note of the problems or programmes to be discussed with the HWF and HAM in your daily diary so that the details are not forgotten.

* Whenever feasible, arrange your day so that families living at the periphery of the unit are visited first and the later visits bring you progressively closer to the Subcentre.

Things to do

1. Prepare a list of ways in which you and the HWF can improve the work of the Subcentre. Discuss these with her and decide what each of you will do.
2. Before your supervisor's visit—
   (a) Make a list of problems which you have faced in your work to discuss with him.
   (b) Make a list of all the houses you want him to visit with you.
   (c) Make a copy of your work plan for the next month to discuss with him.
   (d) Keep ready any visual aids, maps or charts which you have prepared and would like to show him.
3. Inform the community members about the MO's next visit. Find out if they have anything they wish to discuss with the MO regarding health care, sanitation, eye camps, family planning campaigns, etc.


To ask M.O.:
1. to see Munna - 2 yr - not gaining weight - (H-5 Dalgaon village)
2. to see Bhaijaman - cough 1 month - (H 10 Shilpada village)
3. Community want M.O. to speak on CATARACT
4. Subcentre roof - needs repair
5. HG Continuing education programme to be held.

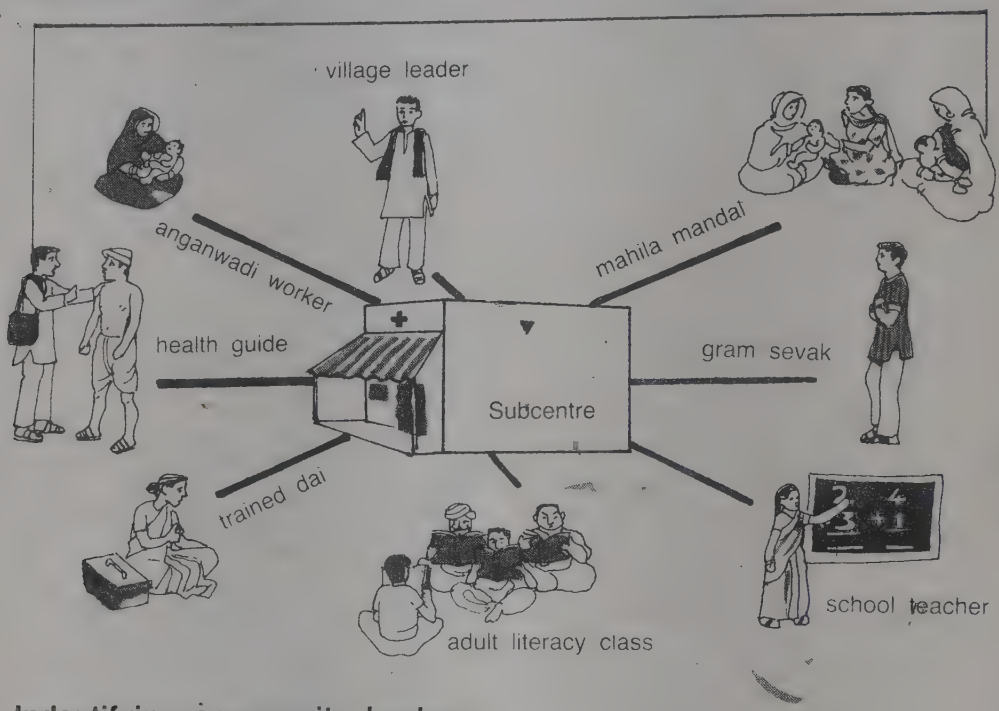
Annexure 2.1 : Sample work plan for the month for Health Worker Male

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Visit Unit A	2 Visit Unit C	3 Visit Unit E	4 Clinic Subcentre	5 Training / Continuing education	6 Monthly meeting at PHC
8 Visit Unit B	9 Visit Unit D	10 Clinic Subcentre	11 Camp Preparation	12 Camp conduction	13 Holiday
15 Visit Unit A	16 Visit Unit C	17 Visit Unit E	18 Clinic Subcentre	19 Training / Continuing education	20 Missed Visits
22 Visit Unit B	23 Visit Unit D	24 Clinic Subcentre	25 Missed Visits	26 Record keeping	27 Missed Visits
29 Visit Unit A	30 Visit Unit C	31 Visit Unit E			

You should plan to be in the same unit on the same day and at the same time each week.

Health care is not everyone's right but everyone's responsibility.

As a Health worker in a rural community you are also a community worker. You must, therefore, work closely with the community and with other community level workers in the area.



Indentifying community leaders

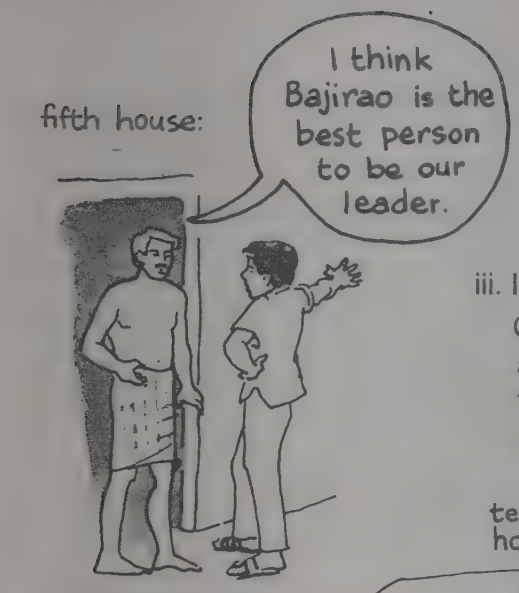
In every rural community there are formal and informal leaders. They can help you to get the support of the community for your work.

OBSERVATION

You can find out who are the community in the following ways :

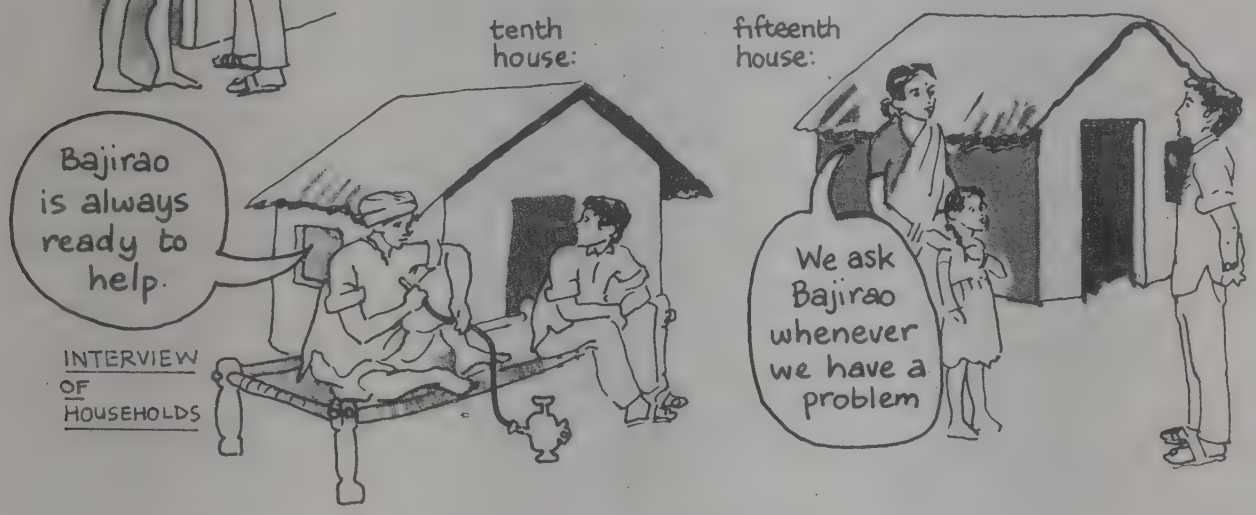
i. Interview the formal or official leaders, e.g. sarpanch, school teacher, president of mahila mandal etc. Obtain from them the names of men and women whom they think are influential in the community and who represent various community groups.

INTERVIEW OF FORMAL LEADERS



ii. Observe which persons in the community are frequently consulted by the people when they need advice or assistance.

iii. Interview the head of every 3rd, 5th or 10th family. Get his opinion as to whom his family would like as a leader. Those whose names are most frequently mentioned are identified as community leaders.


tenth house:
Bajirao is always ready to help.
INTERVIEW OF HOUSEHOLDS
fifteenth house:
We ask Bajirao whenever we have a problem

Orientation of community leaders

With the help of your supervisor arrange orientation training camps for the community leaders in your area. Involve the HWF, MO PHC, BEE and other staff of the PHC or CHC in these camps. Some of the topics which could be discussed at these sessions are as follows :

- The health services available to the community and the role and limitations of the Health Workers, Health Guides and trained dais in the community.
- The various heath problems existing in the community and the role of the leaders in helping to solve these problems.
- Specific information related to various health problems and programmes, e.g.

  * Maternal and child care. * Family planning. * Improved status of women and delayed age at marriage. * Nutrition. * Immunization Programme. * Prevention and control of communicable diseases.

* Environmental sanitation.

— The available community resources and how they can be used to improve the health status of the community.

— Ways of educating and motivating the community to improve their health and change their health practices.

— Coordination of the various developmental activities of the community so as to achieve total well being of the community.

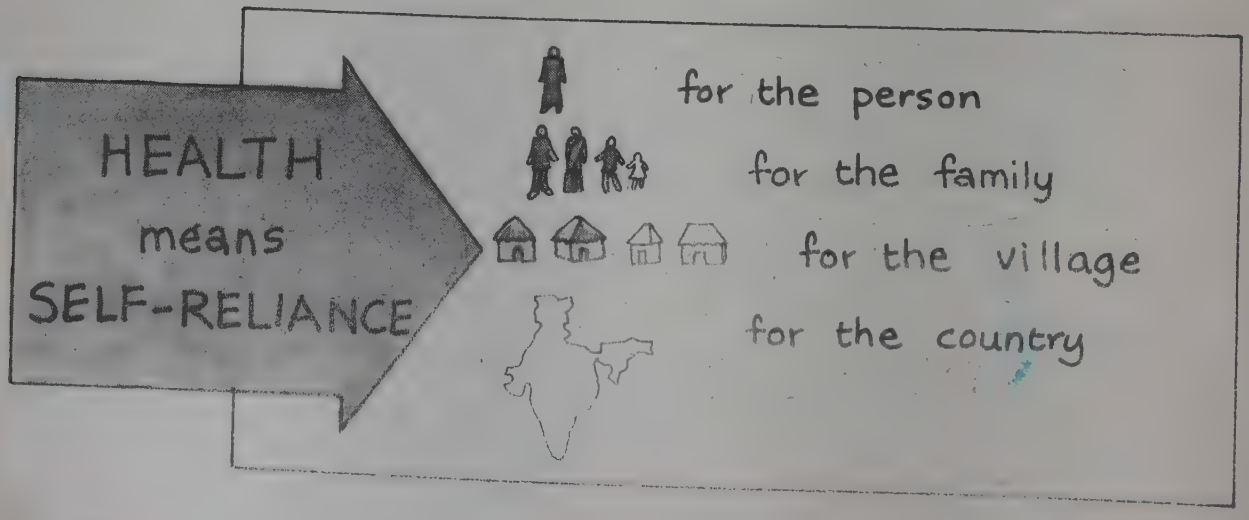
Working with other community workers

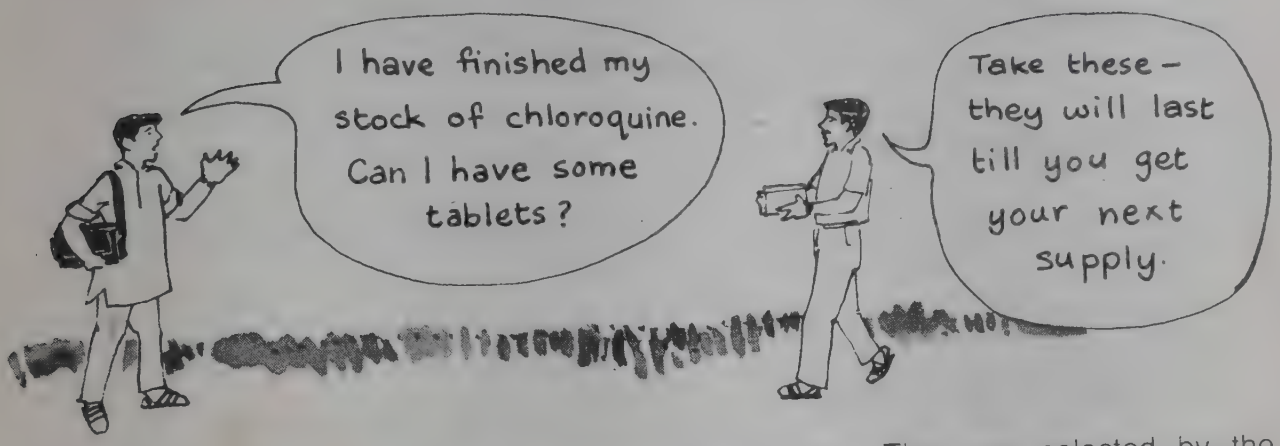
You should maintain friendly relations with all the leaders in the community. Do not become involved in party factions and feuds.

Find out what are the current needs of the community. Relate these needs to the health services and try to satisfy these needs. If you are unable to do so, explain to the leaders why this is not possible. Suggest alternative ways, if any, of meeting the community requirements.

Plan with the leaders for the delivery of health services, their timing, and ways of improving the services.

Take the help of the leaders for health education and motivation of the community members through the mahila mandals, village health com mittees and other existing community organizations.





The HGs are not government employees. They are selected by the community from among themselves. After their training they work with the community and are supervised by the village health committee. However, you and the HWF are responsible for providing technical guidance and help to the HGs in your area. You should also replenish their stock of nirodh and chloroquine if they have run out of stock.

Remember that the HG is not in competition with you but he is there to extend health care in your absence.

The HGs can be encouraged to 'collect' women and children in a central place in the village for you to examine, treat, advise or refer. They should be encouraged to give you the names and location of those who are in need of services and have requested a home visit, or those who are unwilling or unable to come forward for services. Cases which they should refer to you would include infants and children who are not growing at a normal rate, men who want more detailed information regarding vasectomy, or preschool children who have dry eyes or look pale.

Other ways in which you can work with the HGs are as follows:
Involve them in selected tasks whenever mass programmes or campaigns are being planned in the village.

* Meet them on your visits to their village.
* Encourage them to be present when you examine patients whom they have referred to you. In this way they will learn from you.

The traditional dai has the confidence of the people in her village. She can help in giving health care to mothers and children. She can influence the women in the community to take advantage of the services available for themselves and their children. You should take her help in providing family welfare services in the community.

Working with other community workers

You should also work closely with workers from other departments. These workers include teachers, agricultural workers, anganwadi workers, gram sevaks and sevikas, members of mahila mandals, yuvak mandals etc. All of these workers have the same overall goal, viz. to improve the welfare of the community. Some of the ways in which you can cooperate with them are as follows:

* Find out about their activities and inform them about the health services available.

* Identify areas where you can cooperate with each other.

* Participate in their activities.

* Request their assistance in your programme.

Conducting a home visit or an interview

Before you make a home visit you should do the following:

i. Go through the Household and Family Record and note whether the family needs any particular advice. For example,
There is a young couple with one child of 4 months in the house.
You should advise them about:

— family planning

— immunization of the child

— infant weaning. *or*

One of the family members has tuberculosis. You should check:

— that he is taking his treatment regularly

— that he is disposing of sputum in a safe manner.

ii. Check your kit to ensure that it contains the necessary equipment, supplies of drugs and contraceptives, and teaching aids.

When you make a home visit or conduct an interview, remember to do the following:

i. Greet the individual or family and introduce yourself.

ii. Comment positively on something you note about the individual or the environment.

iii. Find out whether your visit is at a time which is convenient for the individual. Assess whether the content of your visit is appropriate for the present situation. For instance, if there is a serious illness, death, or marriage in the family, it is not an appropriate occasion to talk about family planning or the need for constructing a soakage pit.

iv. Encourage the individual to talk about his/her condition or problem by framing your questions so that 'yes' or 'no' answers are avoided.

v. Avoid asking any intimate questions, e.g. regarding use of a contraceptive method, when servants or older family members are present.

vi. Give credit and support for positive actions taken since your last visit, e.g. if the householder has filled in water collections around the house.

vii. Use simple language which is understood by the people.

viii. Be alert to 'teachable moments'. For instance, if a child has diarrhoea, the mother would be more willing to learn how to prepare Oral Rehydration Solution than if the child is well.

ix. Do not try to teach everything in one visit.

x. Use various methods of health teaching, e.g. talks, demonstrations, or using simple visual aids or actual objects.

xi. Do not criticize or ridicule any habits or customs which you observe.

xii. Plan with the individual for your next home visit.

After your home visit do the following :

i. Make a note in your diary of any important findings on your visit. Do this after you leave the house. Enter these findings later on in the relevant records.

ii. Make a note of any points to be discussed with the HWF or HAM.

The Busy Health Worker

Is Govindbhai at home? I have to talk to him about his vasectomy.
Please sit down- I will call him.
Namaste sahib- I can't decide yet- My child has diarrhoea
Namaste Govindbhai. What have you decided about your vasectomy?
Oh, I see...
Okay, I'll come next week. I have a lot of visits to make today.

Do you think this was a good home visit? If yes, why? If no, why not?

Carrying out a simple health survey

When you start work in your area, you should try to find out about the families in the area.

* How many persons are there in the household; adults / children?
* How healthy are they?
* Have the children been immunized against various diseases?
* Are the couple using any method of family planning or has either partner been sterilized
* Is the house and its environment clean?
* Are the children kept clean?
* Have there been any birth or deaths since your last visit?

From time to time bring this information up-to-date by revisiting the households.

Annexure 3.1 is a list of 20 basic questions which you should ask yourself when you visit a household. The anwsers to these questions will lead you to ask further questions, carry out the necessary examinations and treatment, or advise the family about the health measures they should take. Gather this information in an informal way through conversation and observation.

Things to do

1. Use the three methods mentioned in this chapter to find out who are the formal and informal leaders in your area. Which method did you find most useful?
2. With the help of the HWF, carry out a simple health survey in your area. Record your findings in a ruled excercise book. Keep one double page for each household. Use this information to plan your home visits and health education programmes.

Annexure 3.1: Twenty questions which the Health Worker should ask himself / herself during home visits

1. Is there any case of fever-
   (a) With rigors?
   (b) With cough?
   (c) With rash?

2. Does anyone have any skin disease (e. g. itching, patch, rash)?

3. Does anyone have a cough for more than two weeks?

4. Does anyone have any other illness?

5. Has the wife missed her menstrual period?

If yes,

(a) Is she pregnant?
(b) If she is pregnant-
   i. Has she been registered?
   ii. Does she want MTP?
   iii. Is she getting iron and folic acid tablets?
   iv. Has she had tetanus toxoid?

6. Are there any children below 5 years who have not yet received—
   (a) BCG vaccination?
   (b) DPT vaccination?
   (c) Poliomyelitis vaccination (if available)?
   (d) Measles vaccination (if available)?
   (e) Vitamin A solution?

7. Is there any child zero to five years in the family who shows signs of—
   (a) Kwashiorkor?
   (b) Marasmus?
   (c) Vitamin A deficiency?
   (d) Anaemia?
   (e) Rickets?

8. Are the couple-
   (a) Using a contraceptive method?
   (b) Intending to undergo; vasectomy/ tubectomy?

9. Have there been any-
   (a) Births? (Date; Sex)

(b) Deaths? (Date; Age; Sex; Cause)
(c) Marriages? (Record in ECCR)

10. Are the children kept clean?

11. Is the house clean?

12. Are food and water stored in a hygienic way?

13. Is the sullage water being disposed of hygienically? (drain; soak pit; kitchen garden)

14. Is the rubbish being disposed of hygienically? (composting; burning; burying)

15 Is the excreta being disposed of hygienically? (sanitary latrine maintained well)

16. Are cattle and poultry housed hygienically?

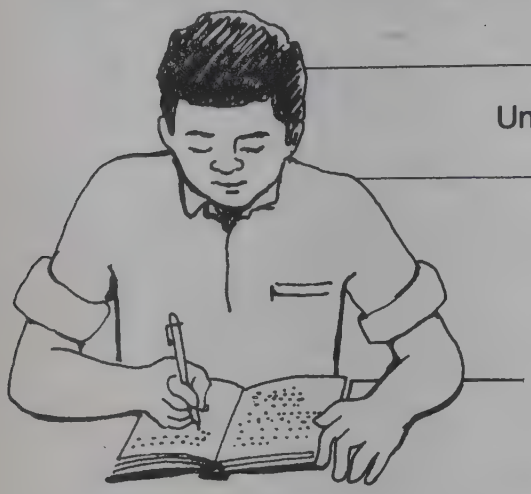
17. If there is a well or hand pump—
(a) Is it maintained in good order?
(b) When was the well last chlorinated?

18. When was the house last sprayed?

19. Is the house infested with insects and rodents and are there any places where flies and other insects and rats can breed?

20. Are there any stray dogs in the vicinity?

CHAPTER 4 KEEPING RECORDS



Unrecorded information is information lost.

The need for record keeping

Records are necessary for various purposes:

i. To collect base-line information.
This can be used—
- *to plan health programmes
- *to plan training programmes
- *to plan field work and supervision
- *to evaluate progress.

ii. To keep a record of activities.
This can be used—

*to get information about the amount of work done by each worker each day, each week etc.
*to find out the type of ailments seen by the health workers
*to collect information required for administrative purposes, e.g. the amount of drugs used in relation to the number of cases treated; the amount of petrol used in relation to the distances covered etc.

iii. For research purposes.
Though you will not be required to collect data for this purpose, your records may, if necessary, be used for research purposes.

Records maintained at the Subcentre

You and your colleague the HWF will be required to maintain the following records:

1. Family and Village Record
   A. Village Record
   B. Household and Family Record

2. Eligible Couple and Child Register
   A. Particulars of Eligible Couples
   B. List of Children below 6 years and Immunization Services

3. Oral Pill and CC Register

4. Sterilization and IUD Register

5. MCH Card/Register

6. Child Card/Register

7. Birth and Death Register
   A. Particulars of Births
   B. Particulars of Deaths

8. Subcentre Clinic Register

9. Stock and Issue Register

10. Report of Blood Smears for Malaria

11. Diary of Health Worker

12. Monthly Report for Health Workers (HWM/ HWF)

These records are included in a separate Supplement to this Manual. The Supplement also contains instructions about how to fill each record.

Maintaining records

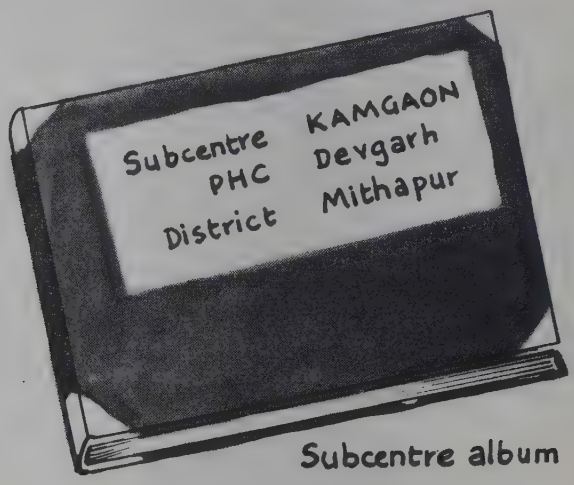
When recording health information, remember the following points:

i. Always enter correct information in your records. Remember that only those records which are accurately maintained are useful. Incorrect information is not only useless but misleading and can result in false conclusions and wrong decisions.
ii. Write neatly and legibly.
iii. Make the sentences short and clear.
iv. Make the entries at the time the service is delivered or later on the same day. In this way you are less likely to forget the details. Keep some time at the end of each day to bring your records up-to-date.
v. Arrange the records in such a way that they are easily accessible to yourself as well as to the HWF, HAM, HAF or MO PHC. After use always return a register or case card to its proper place.
vi. Always treat the information gathered in the health records as confidential. Do not let any unauthorized person have access to the records.

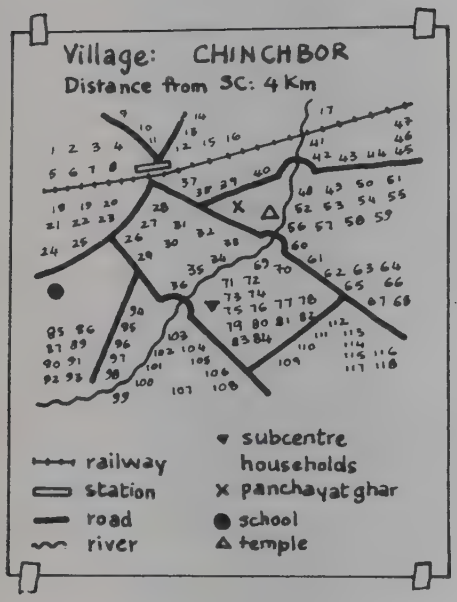
Display of information

You should prepare maps, charts and graphs showing the work being done in your area . These will show at a glance how your work is progressing. You can display these maps and charts on the wall of the Subcentre; or you can prepare an album about 22 cmx17 cm in which the maps and charts can be included. Always keep your maps and charts up-to-date.

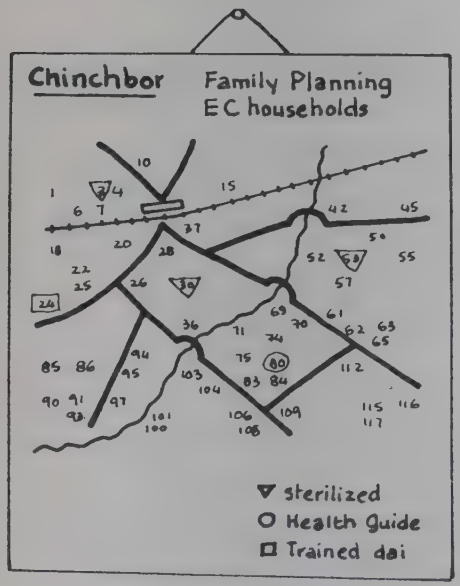
Some of the important maps and charts which you can prepare are listed below:



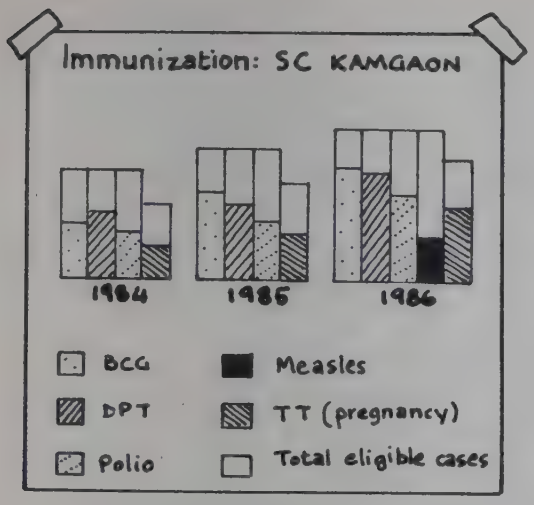
Subcentre album



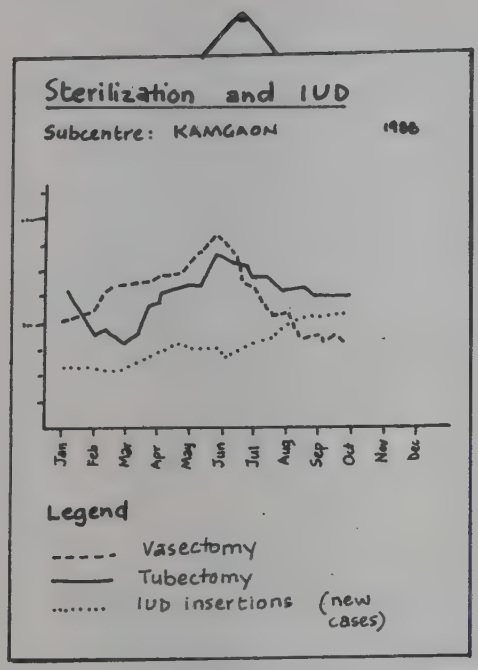
1. Maps of each village showing:
   —numbered houses
   —roads, rivers and railway lines
   —location of Subcentre, panchayat ghar, school etc.
   —houses with children zero to five years
   —houses with couples eligible for family planning
   —location of Health Guides
   —location of trained dais.



2. Bar diagram charts or graphs (yearwise and monthwise) indicating:
   —Number of children given:
   *BCG vaccination
   *DPT vaccination (3 doses)
   *Poliomyelitis vaccination (3 doses)
   *Measles vaccination (if available)



—Number of pregnant women given tetanus toxoid (2 doses or booster)
—Number of school children immunized with:
*DT vaccine
*TT vaccine
*Typhoid vaccine
—Number of births-male/female
—Number of deaths by age and sex
—Number of mothers and children given iron and folic acid tablets
—Number of children one to five years given vitamin A solution-new/old
—Number of cases who have undergone-vasectomy tubectomy
—Number of cases who have undergone IUD insertion—new/reinsertion
—Number of cases given oral contraceptives—new/old
—Number of cases given nirodh—new/old
—Number of blood smears taken from fever cases—total smears; smears found positive for malaria/filariasis
—Number of cases given radical treatment for malaria
—Number of cases undergoring treatment for tuberculosis—new/old
—Number of skin smears collected—total specimens; smears positive for leprosy
—Number of cases undergoing treatment for leprosy—new/old
—Number of cases of diarrhoea (agewise)
—Number of packets of ORS distributed
—Number of wells chlorinated
—Number of sanitary latrines constructed
—Number of soakage pits constructed



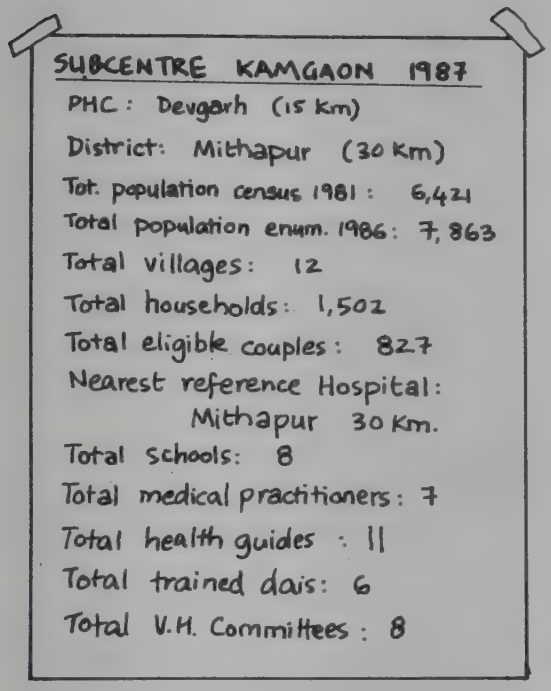
3. In addition a chart showing the following general information about the Subcentre area may be displayed. This information should be updated each year.

—Total population (census)
—Total population (enumerated)
—Total villages
—Total number of households
—Total number of eligible couples
—Nearest referral hospital
—Total number of schools
—Total number of medical practitioners of all systems
—Total number of Health Guides
—Total number of trained dais
—Total number of Village Health Committees

Things to do

1. Along with the HWF prepare an album giving information about your Subcentre. You can use a large drawing book *or* you can put blank sheets of paper in a file.
2. Make a bar chart showing the number of children and mothers immunized in your Subcentre area. Use different colours for each immunization. At the end of each month add to each bar those who have completed their immunization. Display this chart on the wall of the Subcentre.
3. Make a large chart giving general information about yours Subcentre area. Display this chart on the wall of the Subcentre. See that you update this chart every year.

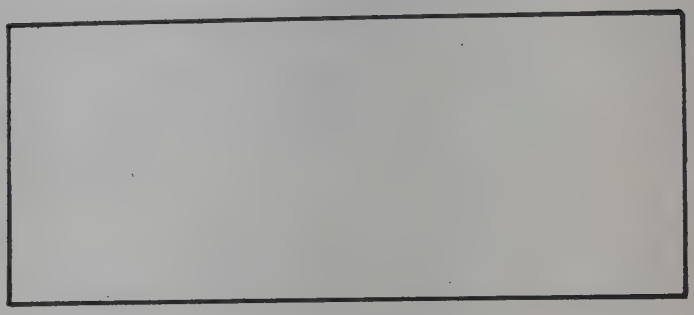
Note: You can use the blank backs of old calendars for preparing your wall charts.



Subcentre General Information Chart

PART II

COMMUNITY HEALTH



Chapter 5 Health Hazards in Rural Areas
Chapter 6 Safe Water
Chapter 7 Disposal of Wastes
Chapter 8 Personal Hygiene

CHAPTER 5 HEALTH HAZARDS IN RURAL AREAS

The family and its environment are inseparable. Improve the environment and you benefit the family.

The health hazards in a rural community include the following:

1. Hazards outside the home such as collections of refuse, breeding of disease-carrying insects and vermin, stray dogs, stagnant water collections, unhygienic eating places, or unprotected electrical installations.

2. Hazards in the home such as open fires, sharp implements, overcrowding, badly constructed houses, unhygienic food and water storage arrangements, insanitary disposal of waste water and solid wastes.

3. Hazards in the fields such as accidents related to the use of agricultural tools and machines, snake bites and scorpion stings, sickness related to the use of pesticides or to contact with plants and pollens.

You are responsible for dealing with most of these hazards. You can play a very important role in educating people about how to improve their living conditions. You must use your knowledge and skills to promote healthy living. Do not hesitate to seek your supervisor's advice. Take the cooperation of the HWF whenever necessary. Remember that you are all working as a team. Your common goal is to achieve health for all the people in your community.

You should educate the community about the following health hazards:

1. Hazards outside the home

i. *Collections of refuse* (garbage, broken glass, paper, plastic, ashes, dead animals, animal dung)

Hazard	Health education
—Provides food and breeding places for for flies and other insects and rats which carry disease.	—Improper disposal of refuse can lead to gastro-intestinal diseases.

Hazard

—Give off foul smells.
—Looks ugly.
—Can cause fires.

Health education

—Store rubbish in light, washable dust bins with lids to prevent flies and other insects settling on it.
—Empty dust bins daily into the compost pit and cover with mud or ash.
—Dispose of rubbish by dumping, composting, burning or feeding to animals (See Chapter 7).

ii. **Breeding of disease-carring insects and vermin** (flies, cockroaches, Mosquitoes, fleas, rats)

—Cause diarrhoea, malaria, kala azar and other diseases.

—Eat valuable food or make it unfit for humans to eat.

Insects and vermin like flies, mosquitoes, sandflies and rats carry disease germs. Control of insects and vermin is necessary to prevent diseases like diarrhoea and malaria and to maintain the control of plague and typhus.
—Ensure that refuse is hygienically disposed of.
—Ensure that sanitary latrines are used for disposal of human excreta (See Chapter 7).
—Ensure that animal dung is disposed of in a sanitary way.
—Ensure that food is stored in rat-proof containers.
—Trap or poison rats.
—Drain water collections.
—Prevent water from collecting in tins, drums or old tyres.
—Cover water tanks.
—Treat stagnant water collections with malariol.
—Cooperate with the spraying squad.

iii. **Stray dogs**

—Dog bite.
—Rabies (See Chapter 18).

—If a person is bitten by a stray dog:
*Refer the person to the PHC for anti-rabies vaccine.
*Observe the dog for 10 days to see if it develops rabies.

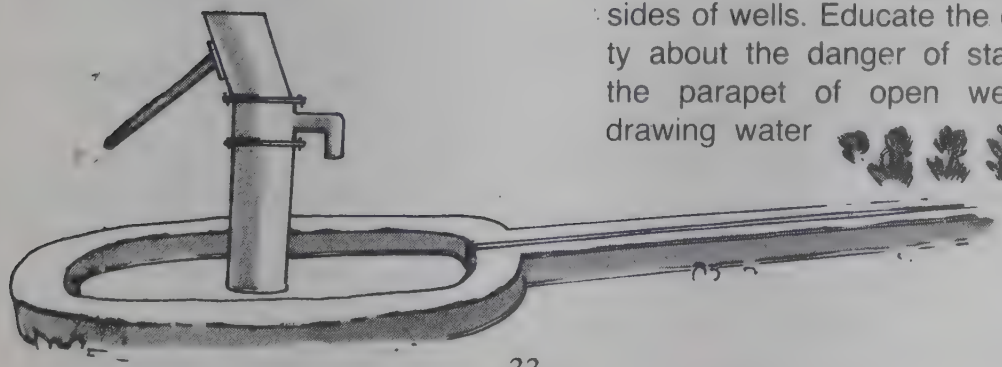
Hazard

iv. **Unprotected water collections**

—Contamination by humans or animals leading to gastro-intestinal infections.

—Breeding place for mosquitoes.

—Accidents - drowning.



Health education

—Report to the HA(M) the presence of stray dogs in the area. Help him in the destruction of stray does.

—Educate the community on the danger of having stray dogs in the area. Seek their cooperation in removing this danger.

—Protect pet dogs with anti-rabies vaccine and prevent them from coming into contact with stray dogs, jackals and monkeys.

—Some of the diseases spread through water are cholera, typhoid, diarrhoeal diseases (e. g. bacillary dysentery and amoebic dysentery) and infectious hepatitis (jaundice)

—Drink water from a safe protected source. (See Chapter 6).

—Drink chlorinated water even though it may taste different.

—Boil drinking water especially at the start of the monsoon.

—Store water in clean covered containers.

—Draw water from containers by a tap or by a dipper with a long handle.

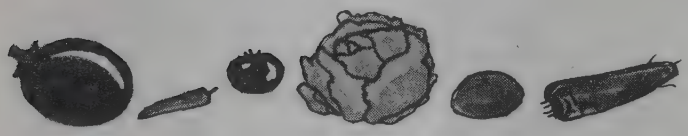
—Keep areas around water sources free from faecal contamination and other sources of pollution.

—The whole community is responsible for safety of the water source.

—Prevent breeding of mosquitoes.

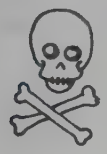
—Prevent children from playing in or Near ponds, or hanging over the sides of wells. Educate the community about the danger of standing on the parapet of open wells while drawing water

Hazard	Health education
v. Unhygienic eating places. —unprotected food or milk can be contaminated by insects and rats can lead to gastro-intestinal infections. —Those handling food may be carriers of diseases like typhoid or dysentery. —Drinking water may be drawn from a contaminated source or may be stored unhygienically. This can lead to gastro-intestinal diseases (See Chapter 15).	Educate the teashop owners about the importance of: — Preventing contamination of food by insects and rats. —Washing vegetables and fruits well before serving. —Keeping nails short and clean. —Washing hands with soap and water before cooking or serving food. —Using water from a protected source for drinking, cooking or cleaning utensils.



vi. **Unprotected electrical installations**

—Electrocution.



—The community must ensure that there are no live electric wires or unprotected electrical installations in the area.
—People and especially children should be warned not to touch electrical installations or wires.

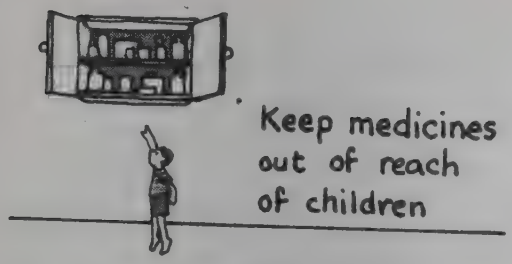
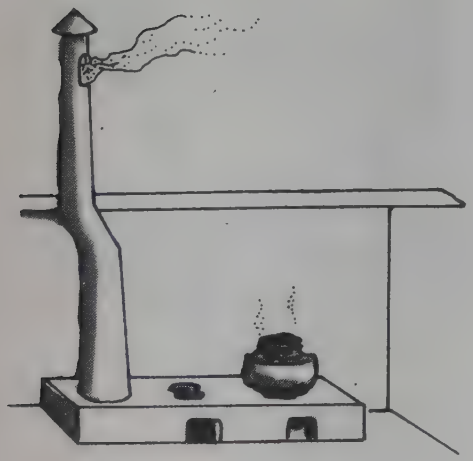
2. **Hazards in the home**

i. **Home accidents**

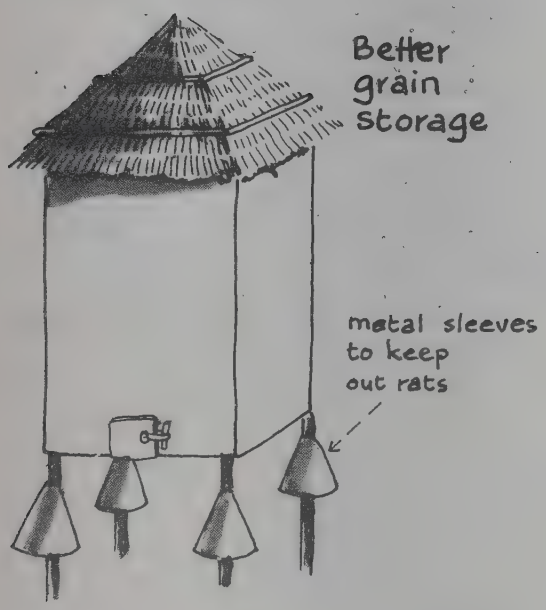
—Open fires causing burns especially in young children
—Sharp implements causing wounds.

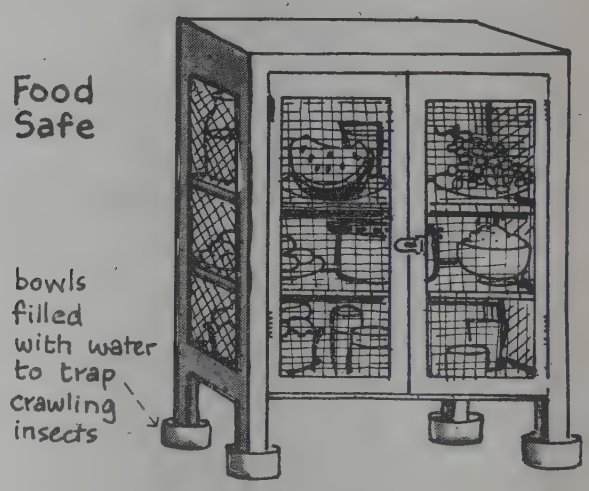
—Children putting small objects into the nose, ears and mounth.
—Children swallowing poisonous substances.

—Advise mothers :
—Not to leave children alone in the house.
—To keep their children away from open fires and not to let them play with matches.
—To keep sharp implements like blades, knives or scissors out of the reach of small children.
—To keep small objects like beads, coins, etc. out of the reach of small children.

Hazard	Health education
	—To keep medicines and poisonous substances, e.g. kerosene or insecticide out of the reach of children (See chapter 10, Annexure 10.1).
ii. **Overcrowding** —Spread of air-borne diseasses, e.g. tuberculosis (See Chapter 17).	—Risk of overcrowding especially with regard to spread of respiratory diseases —Need for proper ventilation. —Need for small familes. —Precautions to be taken if any member of the family is suffering from tuberculosis.
iii. **Smoky kitchens** —Irritation of eyes leading to conjunctivitis.	—Construct and use a smokeless chulha.
	
iv. **Badly constructed houses** —House collapse causing injury or death. —Material used can easily catch fire, e.g. thatched roof.	—Houses should be built of strong material and should be repaired in time. —Avoid the use of easily inflammable materials. —Keep available sand or water for putting out fires.

Hazard	Health education
v. Unhygienic food storage arrangements	
— Contamination by insects and rats leading to wastage of food and gastro-intestinal diseases.	—Importance of protecting food from insects and rats. —Use of a food safe. —Do not store cooked food for too long as it gets spoilt and this encourages the breeding of germs.
—Improper storage of grains leading to spoilage by damp.	—Store grain in rat-proof bins in a clean dry place.

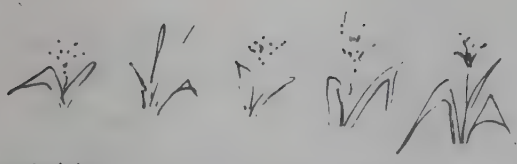




This food safe is easy and cheap to make. It has the following advantages:

i. The food is protected against flies and other insects and vermin. Make sure that the holes of the wire mesh are small enough.
ii. The food is ventilated and can be kept fairly cool if the safe is placed at the proper place in the house.
iii. The safe can be locked.
iv. By placing each leg of the safe in a tin containing water, you can prevent ants getting in.

vi. Insanitary disposal of human excreta	
—Flies carry germs from excreta to food.	—Motivate each householder to construct and use a senitary latrine. Help those interested in getting the materials from the BDO
—Drinking water sources are contaiminated by people defaecating or washing clothes soiled by faecal matter near the water source.	—If the open fields are used for defaecation, the faecal matter should be covered with earth.

Hazard	Health education
	
—Vegetables are contaminated by persons defaecating in cultivated fields. If these vegetables are eaten raw, they can cause gastro-intestinal infections.	—Wash vegetables before eating them raw.
—Walking barefoot on ground used for defaecation can lead to hook-worm infection.	—Use footwear.

vii. **Uncontrolled disposal of liquid wastes** (sullage water from houses, i.e. kitchen water, water from bathing or washing utensils; sullage water from wells or cattle sheds)

—Mosquito breeding.
—Breeding of insects and rats.
— Risk of polluting water supplies.
—Foul smell.

—Educate the community on dangers of water collections in vicinity of houses.
—Advise each householder to construct a soakage pit (See Chapter 7). Help those interested in getting the soakage pit made.
—Advise people to use sullage water for watering kitchen gardens. Assist those interested in starting a kitchen garden in getting the seeds and fertilizer. Take the help of the agricultural worker.

viii. **Collection of cow dung**

—Risk of tetanus or other infections if person handling cow dung has cuts on hands (See Chapter 18).
—Contamination of food by unwashed hands
—Contamination of food by flies settling on dung.

—Do not handle dung if hands are injured.
—Keep nails short and clean. Wash hands well with soap and water before handling food.
—Protect food from flies.
—Advise community members to have gobar gas plants. Refer those interested to the Block Development Officer.

Hazard

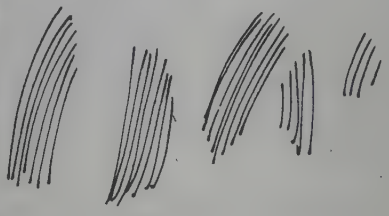
3. **Hazards in the fields**

i. **Accidents**

—Cuts, fractures and crushing injuries from the use of agricultural tools and machines.

Health education

—Educate of community about the need to handle agricultural implements and machines, e.g. grass-cutting machines, with care. Tell them how to protect themselves and others from injury.



—Risk of tetanus.

—Stress the need for protection against tetanus by tetanus toxoid immunization.

REMEMBER THAT FIELDS ARE ALWAYS FULL OF MANURE WHICH IS USED AS A FERTILIZER. ENSURE THAT IN EVERY ACCIDENT INVOLVING A WOUND, THE PERSON IS GIVEN TETANUS TOXOID.

—Snake bite and scorpion sting.

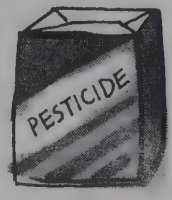
—Allergy or poisoning due to pesticides or fertilizers.

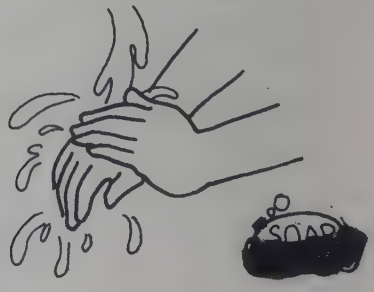
— Use footwear when walking in the fields. Carry a stick and a lantern at night.

—Keep pesticides and fertilizers in a separate well-ventilated room. Do not keep them near food or grain.

—Handle pesticides and fertilizers with care. If necessary wear a mask.

—After handling pesticides and fertilizers wash the hands well with soap and water.

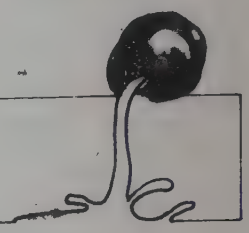




How many health hazards can you find in this picture?

Things to do

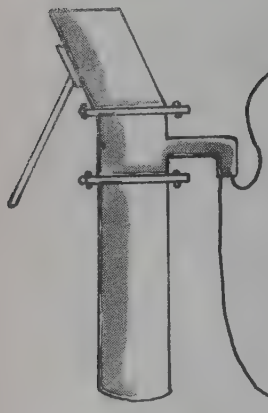
1. When you next visit a village, try to observe what are the different health hazards in and around the homes and in the fields. Discuss with the Village Health Committee or community leaders what can be done to remove these hazards.



Water is the source of life. Type

Water is essential to life and must, therefore, be avilable to everyone.

In rural areas people generally drink water without-boiling it. Most other food is usually made safe by cooking before eating it. Therefore, it is very important that special attention is paid to providing safe drinking water to people.



Uses of water
Water is used mainly for:
—drinking and cooking
—cleanliness: bathing, washing clothes, washing utensils, floors, etc.
—safety: in case of fires
—cultivation of fruit, vegetables, flowers and crops
—watering livestock.

Uses of Water

Water used for drinking must be free from chemical substances and germs in amounts which would be dangerous to health. Also, drinking water must be colourless and clear and free form any smell or taste.

Drinking Water

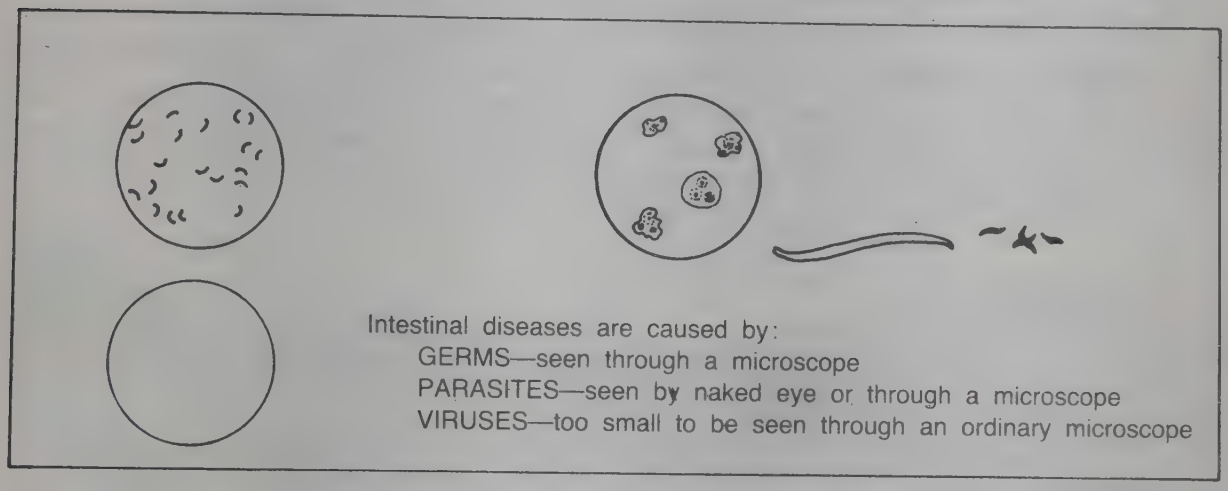
A safe water supply in rural areas is a proctected supply which comes from a safe source or has been properly treated. However, even this water can be polluted or contaminated after it has been collected form a safe source if proper precautions are not taken.

Diseases transmitted through water

Water polluted with human excreta causes gastro-intestinal diseases, i.e.cholera, typhiod bacillary dysentery and diarrhoea. All these are caused by **bacteria or germs.**

Roundworm, guneaworm and amobic dysentery are also spread through contaminated water. These diseases are caused by **parasites.**

Poliomyelitis (infantile paralysis) and infectious hepatities (jaundice) are serious infections which are also transmitted through contaminated water. They are both caused by **viruses**



Intestinal diseases are caused by:
GERMS—seen through a microscope
PARASITES—seen by naked eye or through a microscope
VIRUSES—too small to be seen through an ordinary microscope

Common sources of water supply in rural areas

The major sources of water supply are:

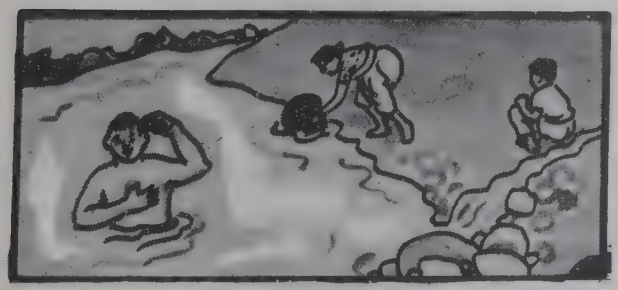
(a) Surface Waters
- — collections of rain water
- — tanks and reservoirs
- — rivers, streams and canals
- — lakes and ponds

(b) Underground water
- — ordinary wells: shallow and deep
- — tube wells: shallow and deep
- — artesian wells
- — step wells
- — springs.

Pollution of drinking water

Surface sources are more likely to be polluted than underground sources. Drinking water can be polluted in various ways:

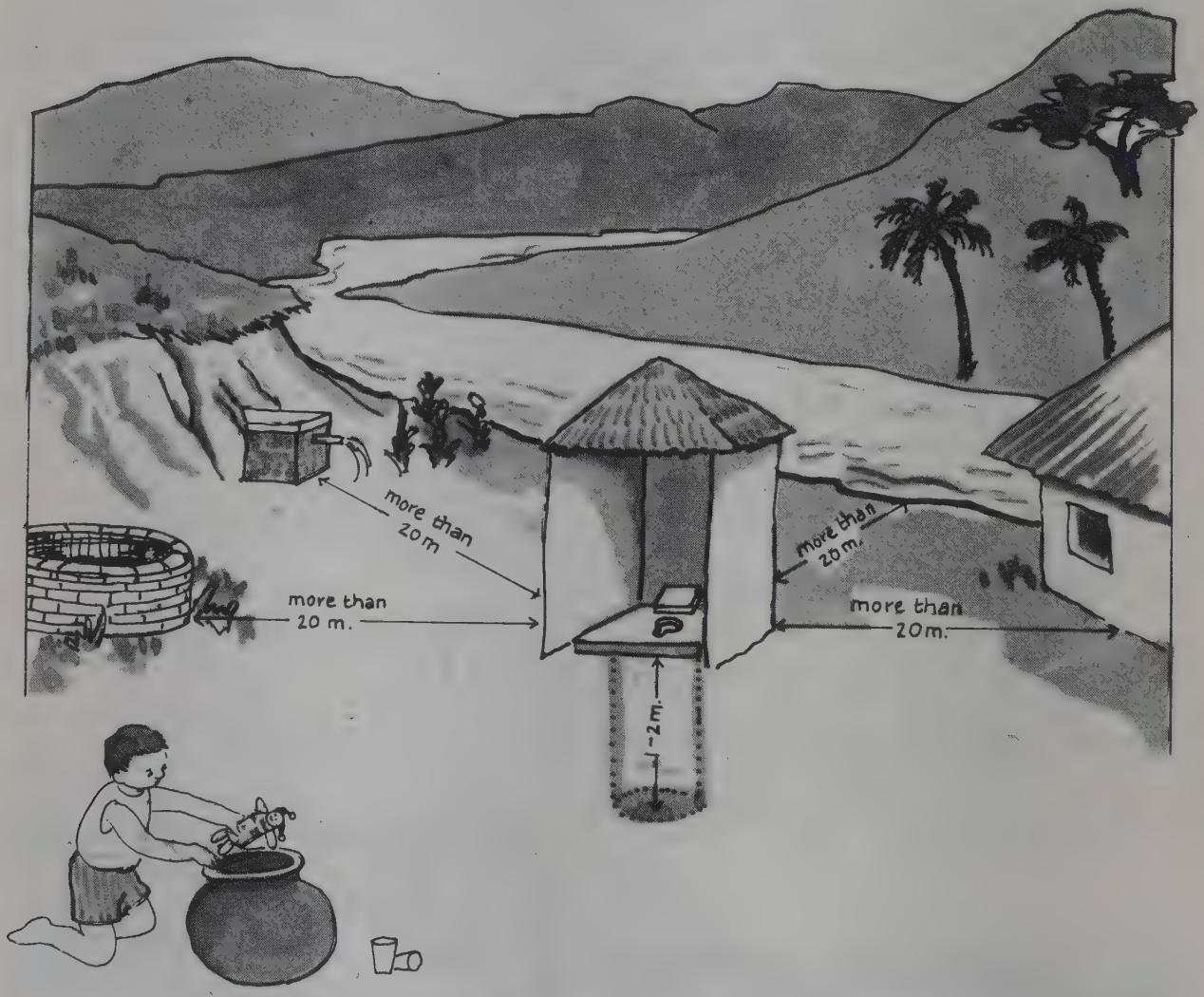
i. **Before the water is collected:** Surface water is polluted by:
people defaecating near the source; people bathing and washing their clothes and household utensils in or near the water; animals being washed in the water.



Collections of water in open tanks and reservoirs can also be polluted by birds.

Underground water may be contaminated from latrines, cesspools, soakage pits and septic tanks. These should be at least 20 metres away from wells, springs, rivers or streams.

ii. **During storage :** If water from a protected souce is collected in dirty containers, it becomes polluted and dangerous for drinking. Even if the container is which clean water has been collected was clean, pollution of water can still occur from dust, files, rats or birds, if the water is left



uncovered. Dipping dirty tins into covered clean water containers is common source of pollution.

Water should poured out of stroage containers, or run out through a tap, or a dipper with a long handle should be kept in the water container.

water containers should, preferably, be kept out ot the reach of small children. This will prevent their putting their hands into the containers or falling into them.

Your responsibilites in ensuring a safe water supply

1. **Educate the community:** Your community must know what is safe to drink and what is not. Some of the points which you should stress are as follows:

— Always drink water from a safe source. Do not dirnk water form a pond or river without first boiling the Water

— Drink chlorinated water even though it may taste different.

— Boil drinking water, especially for children. This is necessary particularly when the rains start. At this time the surface waters are more likely to be polluted.

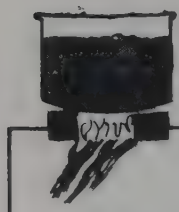
— store water in a clean covered container. Draw water from the container through a tap or with a long-handled dipper kept in the container.

— Drinking unsafe water can lead to several diseases such as cholera or dysentery.

— Keep the areas around water sources free from faecal contamination and other sources of pollution.

— The whole community is reasponsible for cleanliness of the water sources.

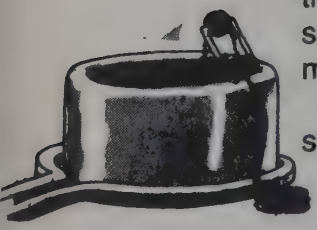
— The community should seek advice and assistance whenever problems arise about the supply of water.



Boiling water is safest but it consumes fuel

2. **Survey the water sources in the community:** When you start your work in the community, your first activity is to survey the area its people. As part of this survey record all sources of drinking water, whether safe or unsafe, and the method of drawing water.

Check the following points to help you decide whether or not a well is sanitary:



Open well

— There should be no latrine within 20 metres of the well.

— There should be no cracks in the lining of the wall.

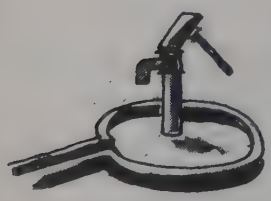
— There should not be any steps leading down to the water.

— A parapet wall about one metre high with a surface slanting downwards to the outside should surround the mouth of the well.

— There should be a cemented platform two meters around the well sloping downdards to the outside.

— There should be a gutter or drain at the outer end of the platform to lead the waste water to a soakage pit.

— Water should be drawn through a well bucket on a pulley or, preferably, through a hand pump.



Tube well with hand pump

— People should not wash clothes or bathe near the well.

3. **Chlorinate public water sources:** Disinfection of water is necessary to prevent water-borne diseases. Bleaching powder is a cheap and reliable disinfectant for large scale use. Bleaching powder releases chlorine which kills the organisms causing water-borne diseases.

In vulnerable areas wells, ponds, tanks, canals and other water sources must be periodically disinfected with chlorine. The base-line survey will help you to prepare a plan for the regular disinfection of water sources.

The objective of chlorination is to achieve a residual chlorine content in the water of 0.5 parts per million (p.p.m.) after 30 minutes of contact. To achieve this it is generally necessary to calcuate the chlorine dose so as to reach 2 p.p.m. immediately after chlorination.

To Chlorinate a well proceed as follows:

Materials required:

— Bleaching powder*

— BUCKET OF AN ADEQUATE SIZE

— ROPE OR CHAON

For example, to chlorinate a well containing 3400 litres of water with bleaching powder having a chlorine content of 20% the amount of bleaching powder required would be:

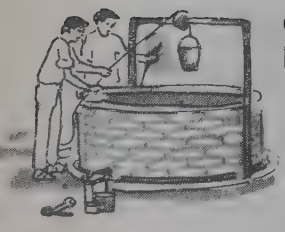
$$\frac{0.21}{20} \times 34\text{c}^{\wedge} = 36\text{g}$$

(c) put the calculated amount of bleaching powder in a bucket. Add water to make a paste. Then fill the bucket up to three fourths with water.

(d) Lower the bucket containing the solution into the well and shake it about to ensure good mixing. Take care that the bottom of the well is not disturbed.

Avoid over-chlorination as this may cause gastro-intestinal disturbances.

Another simple method of chlorinating well is as follows:



Take an earthern pot. In the bottom of the pot make 7 holes, each 0.6. cm in diameter. Fill the lower part of the pot with small stones and cover these with a layer of gravel. Over this place a mixture of the following:

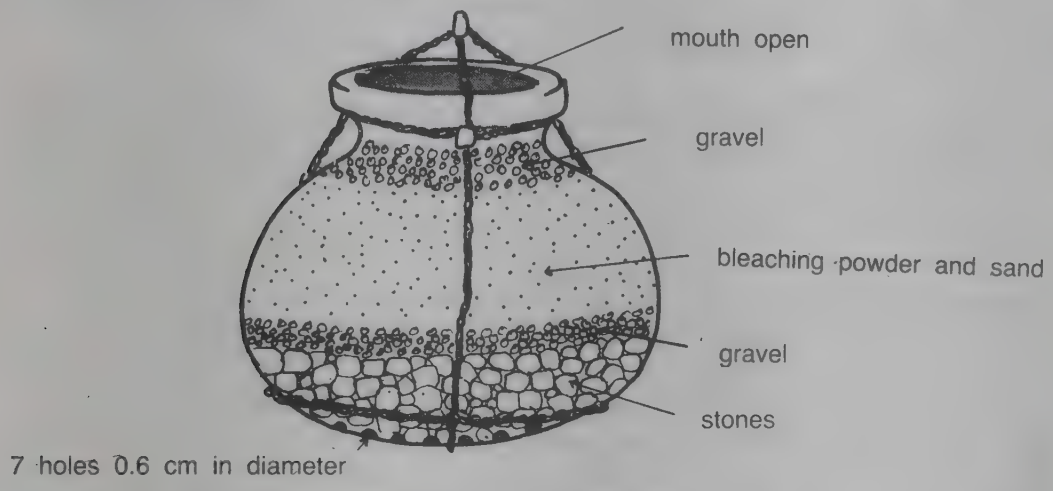
1.5 kg bleaching powder
3 kg coarse sand
75 g sodium hexametaphosphate

Pack the rest of the pot with gravel up to the top. leave the mouth of the pot open. Suspend the pot in the well one metre below water level.

**Note: if properly stored in sealed plastic bags or non-corrosive containers, in a cool, dark, dry place, the chlorine content of unstabilized bleaching powder should not drop bellow 20%. After use re-seal the bag/container.

One pot is enough to chlorinate a well containing 9000 to 13000 litres of water and serving about 20 to 30 people per day. The Packing in the pot has to be changed once a week.

This method is suitable for individual household wells. If it is used for public wells, you must educate the community :



Single pot method of chlorinating a well

—to be careful while lowering buckets to avoid breaking the pot;

—to prevent children from deliberately cutting the rope suspending the pot.

Open wells should be chlorinated once a week. For this you must take the help of the health Guide of the Village and of the people using the well.

Chlorination of ponds, tanks and other surface water is not carried out as a routine. It is done if there is an epidemic of a water-brone disease. Consult your supervisor for advice in such cases.

4. Ensure that hand pumps are in order: Tube wells are usually disinfected before they are fitted with hand pumps and sealed. This provides a safe source

of drinking water. Tube well should be properly maintained so that people do not have to use other polluted water sources. You must know what are the arrangements in your area for maintenance of water pumps. You must keep a close watch on these pumps and report immediately to the concerned authority if any pump is out of order and requires attention.

You must ensure that any alternative source of drinking water supply which is used when a tube well is out of order is rendered safe. Chlorination may be necessary as a first step.

5.**Advise on proper methods for water storage:** There are very few houses in rural areas equipped with their own well or hand pump. Most people draw their drinking water supply form a public source. Also, the person collecting the water has to walk some distance to the well or hand pump and collect enough water to last throughout the day. The water is stored in the house. It can become polluted if the necessary precautions are not taken.

You must advise on the safe way of carrying and storing water as follows:

— The containers used for collecting the water should be clean. They should, preferably, be made of material which can be scrubbed. They should be of a shape which allows to be cleaned form the inside.

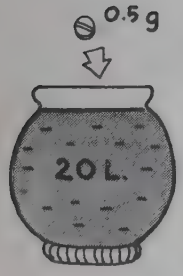
— Where water is stored in bulk in a container other than the bucket or tin in which it was collected, the container should also be made of material which can be cleaned properly.

— The storage container must have a suitable cover to prevent dust, flies and other insects, rats or birds from polluting the water.

— The storage tank should be raised above the ground and protected to prevent cattle and other animals from drinking from it and polluting it.

— As far as possible, the water should not be drawn out by dipping a tin or other vessel into the water. Preferably the water should be poured out if the container is small enough. If the container is large and heavy, it should have a tap for running out the water or a dipper with a long handle should be kept in the container.

— Large storage tanks should be cleaned once a week to remove collected sediment and algae and to prevent mosquito breeding. The tank should be scrubbed with bleaching powder. Take care not to pollute the tank by using dirty brushes. Keep the tank dry for one day before filling it again.



6. **Advise on water disinfection (domestic):** Boiling ensures total sterilization against all bacteria, cysts, spores and ova. To be effective, however the water must be brought to the boil and kept boiling for at least 5 minutes.

All water given to babies and children should be boiled to prevent the risk of gastro-enteritis and other enteric diseases, poliomyelitis and infectious hepatitis.

Chlorine tablets (0.5 g) can be used to disinfect water. One tablet is enough for 20 litres of water. Put the tablet in the water and stirr the water with a clean long-handled dipper. Allow 30 minutes contact before drinking.

7. **Carry out emergency measures in water-borne epidemics:** The characteristics of a water-brone epidemic are as follows:

— The outbreak is sudden, i.e. a large number of cases occur within one day. A sudden increase in the number of diarrhoeas suggest an infected water supply.

— The outbreak is limited to the community served by the infected source, i.e. the well, pond or stream.

— All age groups and both sexes are affected.

When these three signs of a water-brone disease suddenly appear you must take immediate steps to limit the spread of infection as follows:

— With the help of the commuity seal off the water source until it is effectively chlorinated.

— Instruct the householders to empty all their water containers and run off the stored water into the ground.

— Instruct all householders to ensure that the water used for drinking or cooking is boiled.

— Advise the householders to clean their water containers, dry them and expose them to the sun.

— Treat all case of diarrhoea and take the help of your supervisor and the MO PHC

— Chlorinate all the water sources in the village.

— Before opening the source for use, wait for your supervisor or the PHC laboratory technician to test the water for residual chlorine.

— Educate the community so as to prevent the re-pollution of open sources of drinking water supply.

— Make all the necessary arrangements to provide an alternative source until the polluted source is rendered safe. The community should be involved to prevent further spread of the disease.

Things to do

1. Carry out a quick survey of the water sources in a village in your area. Take the help of the Health Guide in the village. Find out:—

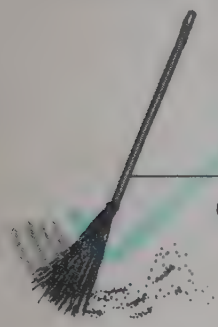
(a) What are the different sources of water supply used by the people?
(b) Is each source safe or unsafe?
(c) Are the hand pumps in working order?
(d) Who attends to the pumps when they go out of order?

2. Show the Health Guide how to take the dimensions of the well from which people draw their water. Show the HG how to calculate the amount of bleaching powder to be used for chlorination. Observe whether the HG chlorinates the well properly.

An Epidemic of infectious hepatitis has broken out in Kheda village...
Laxman has hepatitis (jaundice)
He has a bowel movement near a pond. The germs of the disease get into the water.
Ganga takes water from the pond to her house.
Ganga, her husband, and their children drink the water.
They all get hepatitis.
Ganga's baby passes a stool and dirties his clothes.
Ganga washes the baby's clothes near the well.
Biju takes water from this well.
Biju, her husband and son drink this water.
Biju's family also gets hepatitis.

What advice would you give to:

- Laxman?
- Ganga?
- Biju?
- The Village Health Committee in Kheda?



Cleanliness of the village is the responsibility of every member of the community.

In rural areas wastes are of three kinds—sullage or liquid wastes, excreta or body wastes, and refuse or solid wastes. If these wastes lie about they attract insects and vermin, make the surroundings dirty, cause bad smells, and lead to many diseases. It is therefore important to get rid of these wastes in a safe and clean way.

DISPOSAL OF SULLAGE (liquid wastes)

Liquid wastes in rural community are produced form various sources. The most important of these are:

- — Waste from houses which consists of kitchen water, water from bathing, and water form washing utensils and clothes;
- — spillage form public wells and waste form washing places near water sources;
- — waste from cattle sheds;
- — waste from market places, slaughter houses or fairs;
- — waste from cottage industries such as weaving or dyeing.

Your responsibilites in the safe disposal of sullage water

1. **Educate the community on sullage water disposal;** The hygienic disposal of liquid wastes in rural areas can be done at little cost. During your home visits observe how sullage water is treated. Plan your educational activities accordingly. Involve the Health Guide and community leaders to get the community to participate in improving the environment.

Stagnant water around dwellings can cause problems

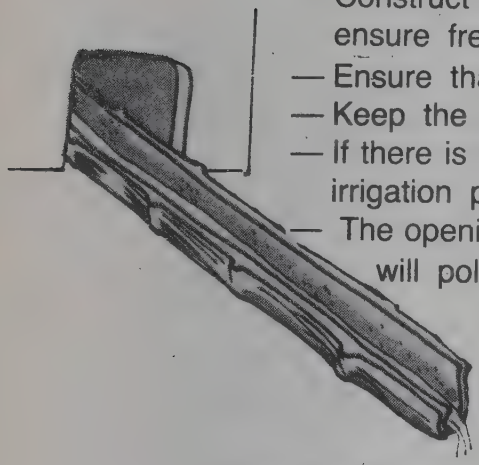
You should talk about the following:

— Stagnant pools of sullage water can result in:
  * breeding of mosquitoes
  * bad smell
  * dampness of houses
  * breeding of insects
  * rat infestation
  * pollution of water supply.
— Stagnant water should be safely disposed of through:
  * construction of drains
  * construction of soakage pits
  * leading the water into a kitchen garden.

2. **Helping the community to construct drains:** In rural areas where water may be scarce, sullage water should be used to an advantage and should not be wasted. It is, however, important to lead it away safely without creating hazard to health.

The construction of open drains to carry household Sullage water must be well planned. Silting results in stagnant water collection and regular desilting is costly. Covering a drain with slabs is also expensive.

It is importat , therefore to educate the community as follows:

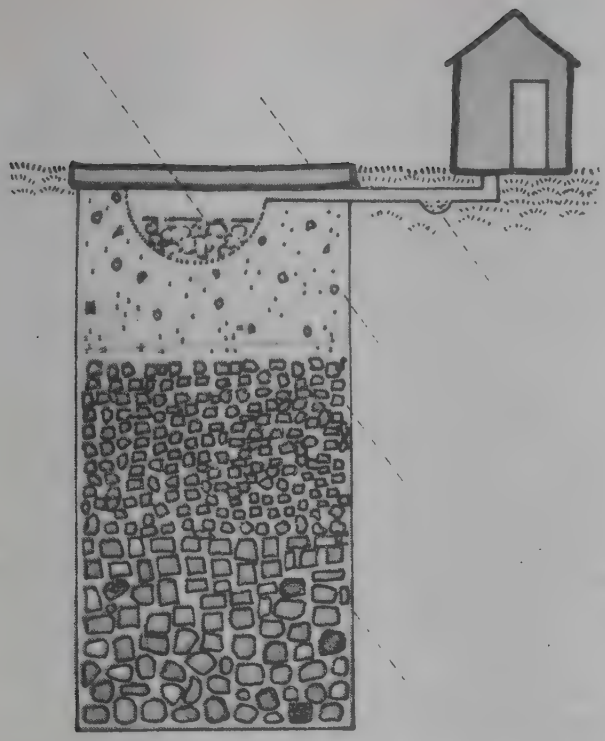


— Construct the drains with a suitable gradient (slope). This will ensure free flow of waste water
— Ensure that the drains are not blocked by refuse and stones.
— Keep the outfall point at a nearby field or garden.
— If there is no suitable outfall point, lead the drain into a soakage pit or irrigation pond.
— The opening of the outfall should **never** be into a water course as this will pollute the water.

3. **Show the community how to construct a soakage pit:** A soakage pit is a dug-out space filled with stones or, preferably, overburnt bricks. The large number of stones or bricks increase the surface area over which biological and chemical action takes place. The water seeps into the ground and reduces the danger of polluting underground sources of drinking water, e.g. wells.

The soakage pit can be constructed at a suitable place near the house. Before the water enters the soakage pit, it should pass through a catch pit so that silt and grit can be retained. This catch pit must be cleaned from time to time.

Soakage pits provide a hygienic way of disposal of sullage water. They are cheap and easy to construct. The raw material required to construct a soakage pit is readily available in rural areas.



Construction of a soakage pit Dig a pit 2 metres deep and 1.5 metres squares or 1.5 metres in diameter. Divide it vertically into three equal portions. The lowest portion is filled with gravel or preferably overburnt bricks of 3/4 size. The middle portion is filled with bricks of 1/2 size and the uppermost portion with bricks of 1/4 size. This is covered with a layer of earth.

The opening is protected by a parapet 10 cm high to prevent rain water form entering the pit.

The house drain should join the soakage pit through a pipe opening into the middle of the pit after passing through a basket filled with straw or leaves. This serves as a filter. The contents of this basket are removed from time to time. They are replaced by fresh dry straw or leaves.

Preferably before entering the soakage pit the house drain should have a catchpit. This will allow solids to settle down so that only fluids will flow into the soakage pit. The catchpit in the house drain can be easily and frequently cleaned.

During the rainy season the soakage pit should be disconnected by blocking the drain.

After a certain time the soakage pit becomes 'sewage sick' and will start overflowing. The pit has to be emptied, and the stones or bricks washes, dried and replaced.

Soakage pite cannot be used in water-logged areas

4. **Advise the community on kitchen gardens:** If the household is small, the amount of waste water is limited and can easily be disposed of by

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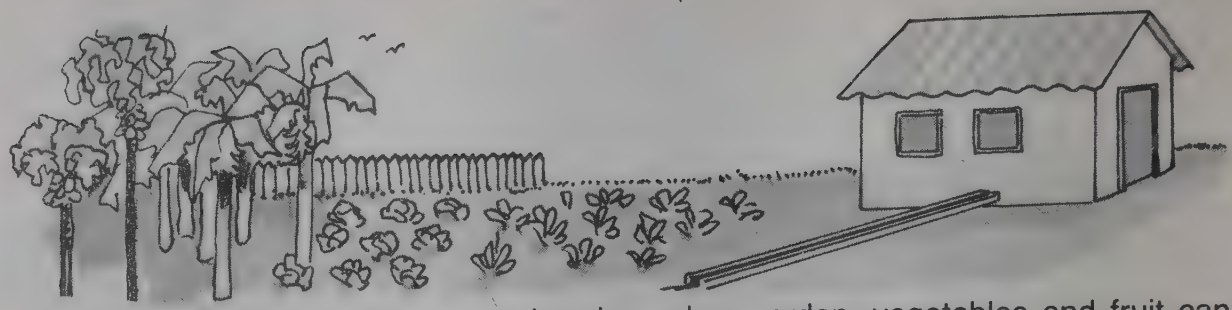


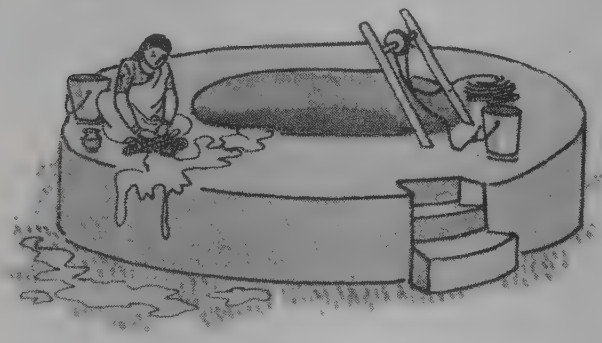
leading it to a kitchen garden. In such a garden, vegetables and fruit can be grown. these could be used by the family to improve their nutrition.

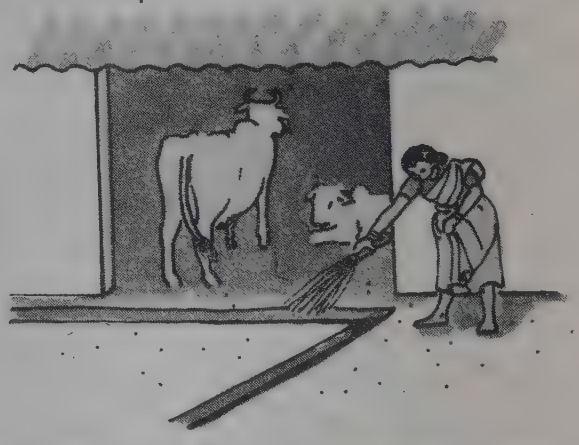
The drains leading to the kitchen garden patch must be kept clean so that water flows freely. Advise the family about the type of seasonal vegetables and fruit which can be grown. Avoid growing root and tuber vegetables (e.g. carrots and radishes) which are eaten raw as these may be contaminated. Banana, papaya, brinjal, ladies fingers, drumstick, pumpkin, spinach etc. are ideal for kitchen gardens irrigated by sullage water.

Take the advice of the agricultural extension worker in the block for information on suitable plants for kitchen gardens.

5. **Show the community how to protect open wells from pollution with sullage water:** The water which is split around an open well must be drained away to prevent drinking water from being polluted. the characteristics of a sanitary well are described in Chapter 6.

Don't let this happen:





6. **Advise on waste water from cattle sheds:** Sullage water from cattle sheds contains dirty water as well as cattle urine and dung. Cattle shed floors should be swept and washed daily. The water should be drained away into a soakage pit or kitchen garden.

7. **Advise on diposal of sullage from market stalls and slaughter houses:** Animals should be slaughtered on a properly constructed slaughter slab. This consists of a hard, impervious, smooth slab, with drains to run off the water after washing down the slab following slaughter. The sullage is drained away into the fields or into a soakage pit fitted with a catch pit to prevent blood clots and offal entering the pit and choking it.

In market areas the amount of sullage water is usually substantial. If left stangnant, it will create health hazards. The market stalls should be supplied with drains which empty into the street drains in semi-rural areas, or into soakage pits in rural areas. Ensure that these drains are kept free form silt to allow the water to flow freely.

8. **Advise on disposal of sullage water form fairs and melas:** Sullage water from fairs and melas is usually made up of waste water from drink and food stalls, and water from ablutions. This waste water is diposed of as follows:

—If the quantity is considerable, it is led into shallow pits where it gets absorbed into the ground. These pits are filled in at the end of the fair or mela.

—If the amount of water is small as in the case of individual food stalls, it is sprinkled on the ground to dry by evaporation and soaking into the ground.

Remember that your responsibilities do not end with telling the community what to do. You must show the community how to dispose of sullage water. Take the help of the BDO, HGs and agricultural workers in carrying out these activities. Get the cooperation of the Village Health Committee and community leaders.

DISPOSAL OF EXCRETA (body wastes)

The proper disposal of human excreta is an important part of environmental sanitation. Intestinal infections common to man are transmitted through the faeces of sick persons or carriers of disease. Unhygienic disposal of human excreta leads to spread of disease in the following ways:

—Flies settle on excreta and carry the germs form the excreta to food.

—Drinking water is contaminated by:

* persons defaecating in or near open streams or pools;
* persons washing clothes soiled by faecal matter in the vicinity of unprotected drinking water sources;
* the use of unclean vessels and ropes to draw water from an open well;
* Soil falling into the well, e.g. from the feet of people standing at the edge of the well;
* dust falling into an open well;
* underground contamination of badly sited wells.

—Vegetables are contaminated by persons defaecating in cultivated fields or by human excreta used as a fertilizer. If these vegetables are eaten raw without washing, they can cause worm infestation.

—Hands are soiled after defaecation. If they are not washed —before handling food,. the food is contaminated.

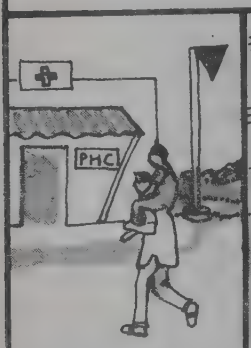
—If a perosn walks barefoot on ground infested with hookworm larvae, the larvae enter the foot and cause hookworm infestation.

Hari and the Hookworms

Hari's house did not have a latrine. He used the fields for defaecation. He never used chappals. His friend Govind also used the same fields for defecation.

Govind was pale & sometimes had stomach ache. He often stayed away from school.

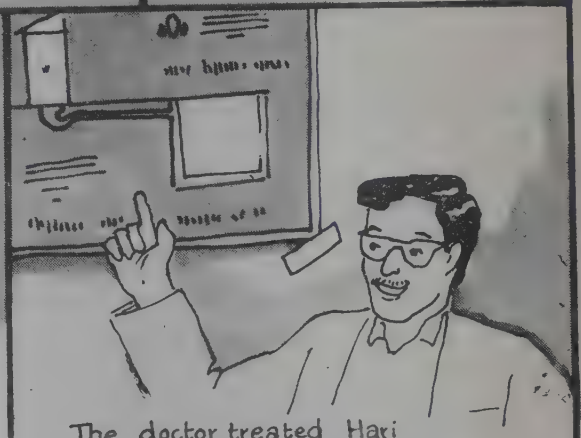
One day Hari felt itchy on his feet. He found small red spots on his feet.



A month later he had diarrhoea. His father took him to the PHC.

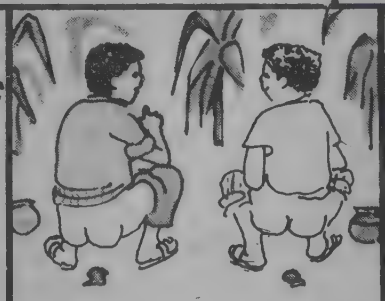
The doctor found hookworm eggs in Hari's stool.

He told Hari how hookworm eggs pass out in a sick person's faeces. The eggs like the warm wet soil. They hatch into larvae. When someone else walks barefoot on the soil the larvae bore into his feet and enter his body.



The doctor treated Hari for hookworm. He told him to always wear chappals when he went into the fields. He advised Hari's father to make a latrine. so that they wouldn't have to use the fields.

Hari told his friend Govind what the doctor had said. Govind also went to the PHC for treatment.



Both boys always wore chappals when they went into the fields

After some time Hari's father and Govind's father built latrines in their houses. No one in their families ever got hookworm again.

Excreta disposal system

In large cities and in some of the larger towns in our country sewage disposal is the responsibility of the civic authorities and a water carriage system is available. However, in most parts of the country the privy method of excreta disposal still exists. It will be several years before sewerage can reach the whole country. Hence, for the present, in rural area the proper disposal of excreta is primarily the responsibility of the house owner.

Excreta disposal facilities in rural areas must be:
—simple, easy to construct with locally available materials, and cheap;
—easy to maintain;
—acceptable to the user;
—able to provide adequate protection from sun, wind and rain;
—able to provide the desired privacy.

Privately owned latrines give a sense of ownership and encourage cleanliness and proper maintenance.

Sanitary latrines: The characteristics of a sanitary latrine are as follows:
—The faeces are not exposed to flies or accessible to animals.
—There is no offensive smell.
—It does not contaminate surface water or ground water in the vicinity.
—It should be at least 20 metres from the water source.
—It does not involve manual removal of the excreta.

Low-cost pour-flush water-seal leaching pit latrine:

The pour-flush water-seal latrine with twin leach-pit disposal has been found to fulfil the requirements of a sanitary latrine. In addition it is economical and at a later stage the latrine can be connected to sewers at minimal cost. This latrine therefore offers a long-term and appropriate solution to the problem of excreta disposal in rural areas as well as in small towns until they can afford a sewerage system.

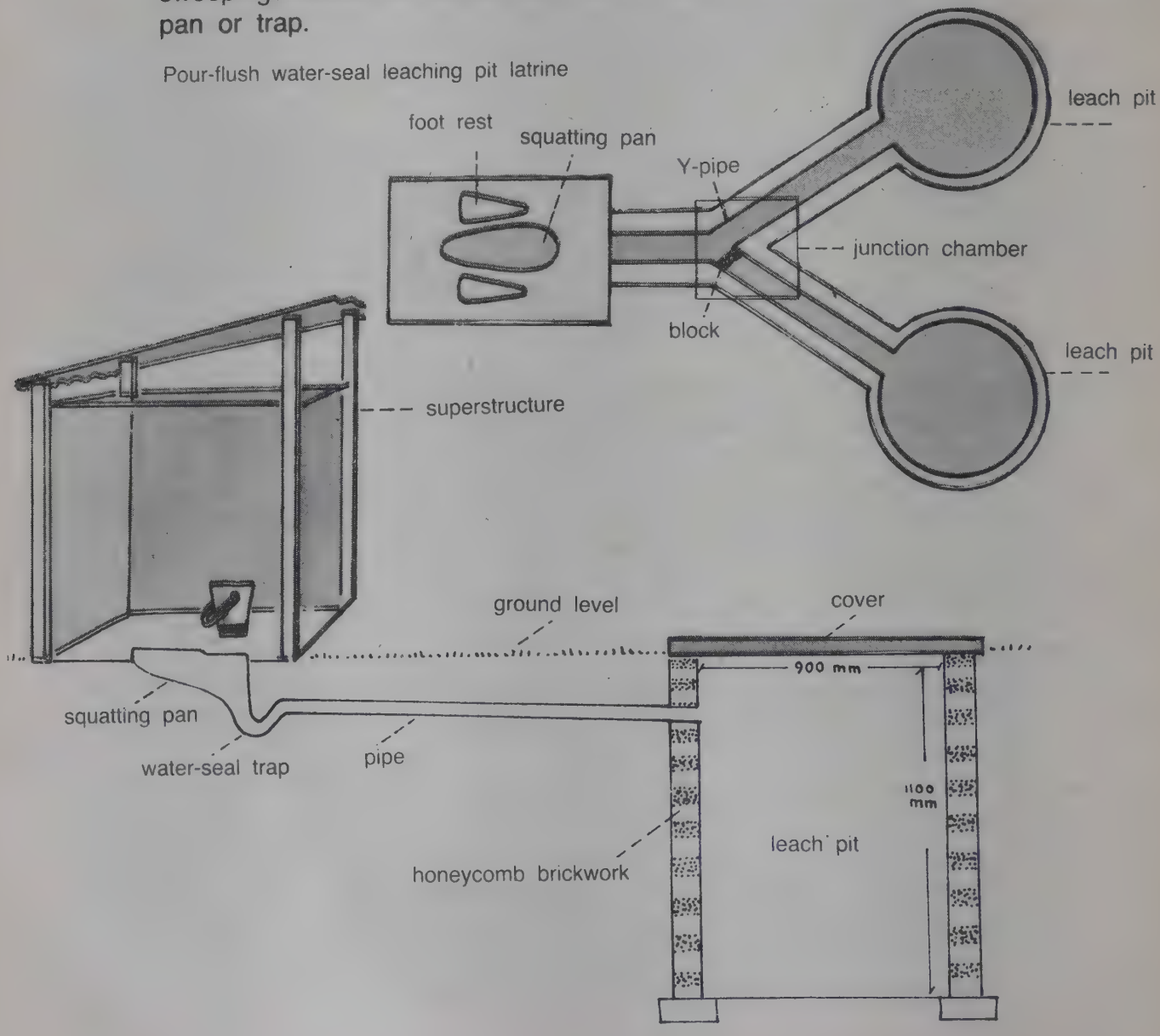
the pour-flush water-seal latrine consists of the following parts:
—A squatting pan with a steep bottom slope (25^0 to 30^0) made of ceramic *or* glass fibre reinforced plastic (GRP) *or* polyuvinyl chlorick (PVC) *or* cement with mosaic polish.
—A water-seal trap of 70 mm diameter with a 20 mm water-seal.
—Foot rests.
—A Y-pipe with an inspection or junction chamber connecting the trap to the pits. The pipe should be made of asbestos cement (AC) non-pressure as for rainwater pipes *or* PVC *or* pitch fibre *or* stoneware. The diameter of the pipe should be 75 mm and the slope 1 in 10. The inlet of the pipes should project at least 100 mm into the pits.

—Two leach-pits. The pits are circular. One pit is used at a time. The size of the pit would depend on the number of members in the household. For five users, each pit should be about one metre in diameter and about one metre deep. The pits are lined with honey comb brick work, open jointed stone, or perforated burnt clay or concrete rings.
—The superstructure. This can be made of any material according to the means of the family.

After use the latrines is flushed by hand using a container holding $1\frac{1}{2}$ to 2 litres of water.

The latrine floor and squatting pan should be cleaned every day with a small amount of detergent powder and water, using a broom or brush with a long handle. Waste water from the bath and kitchen should *not* be allowed to flow into the latrine. Solid waste such as rags, cotton wool, kitchen waste or sweepings should *not* be thrown into the latrine as this will choke the squatting pan or trap.

Pour-flush water-seal leaching pit latrine



properly used, each pit can last for about 3 years before it gets filled. When one pit is full, there will be a backflow when the latrine is flushed. when this happens, the junction chamber is openedand the pipe leading to the filled pit is blocked by a brick. the excreta is diverted to the second pit. The filled pit is left for about 2 years. At the end of this period, the contents become rich organic matter which is odourless and safe to handle. It is emptied and the contents are used.

*Are the ventilation and lighting adequete?
*Is the latrine kept clean?

Once the survey is completed, enter your findings in your household and family record and village record. This will help you to plan your activities and assess your progress.

3. **Advise on the construction of pour-flush water-seal leaching pit latrines:**

After your survey, proceed as follows:

—Encourage householders to convert dry latrines into pour-flush water-seal latrines.
—Encourage those who have no latrines to construct pour-flush water-seal latrines.
—Help them to work out the cost of conversion or construction.
—Demonstrate to them how to keep their latrines clean.
—Tell them of the benefitfs to health in using sanitary latrines.
—Take the help of the HG, Village Health Committee and community leaders in motivating householders to construct pour-flush water-seal latrines.

4. **Advise on the siting of latrines and the construction of superstructures:**

The people in your area may ask you where to locate a latrine and what sort of superstructure to construct.

Some persons object to the latrine being situated in the house. Other prefer the latrine to be in or near the house. Whatever the site chosen, it must be at least 20 metres away from the water source.

—Regarding the superstructure, keep in mind the following:
—the cost of construction;
—the cost of maintenance;
—the materials available and suitablity of the material for—
*Easy cleaning
*providing protection from the sun, wind and rain
*giving the desired privacy.

5. **Assist the community in procuring pans and water-seal traps:**

The householder may seek you help in procuring pans and traps for his latrine.

These matrials are usually avalable at the block development office or at taluka or district headquarters.

Find out where to get the pans and water seal traps, their price, and their availablity. Keep in touch with the suppliers and estimate in advance the requirements of the community.

The latrine should be constructed by a trained mason.

DISPOSAL OF REFUSE (solid wastes) :

The accumulation of refuse in the house or at the roadside causes health hazards.

Refuse in made up of :

—Garbage: vegetable parings, animal and fish waste, matter from food preparations, left over food, and left over fodder of animals.

—Rubbish: waste materials such as bottles, broken glass, paper, tin cans, bits of metal, plastic, rubber, etc.

—Ashes: Leftovers from burning wood, charcoal and cowdung fuel.

—Dead animals: dogs, cats or chickens killed on the roads, or animals dying of disease, or rats and dogs deliberately destroyed.

—Street sweepings: leaves, paper, cigarette ends, etc.

—Animal dung: droppings of cows, buffaloes, horses, and other animals.

In rural areas the organic content of refuse is high. This adds to its value as a fertilizer if proper composting can be arranged.

Need for proper disposal of refuse

The main public health reasons for proper disposal of refuse are:

—Piles of waste materials provide food and breeding places for flies and other insects and rats which carry diseases. They also attract pigs and stray dogs.

—organic waste materials decay and give off foul smells.

—scattered refuse is unsightly

—piles of waste materials can cause fires.

Methods of handling and disposing of refuse Storage:

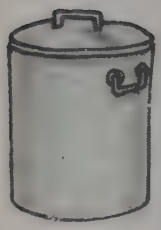
Before it is disposed of, refuse should be kept in a dust-bin. Ensure that the dustbin:

—has a lid to prevent flies and insects from getting into the refuse;

—is small enough to be easily carried when full, but sufficient to collect the houshold refuse;

—is made of material (plastic or metal) which is waterproof, easy to wash, and not easily broken or destroyed by rats, cats and dogs.

The contents of the dustbin are usually emptied daily into a nearby pit or wasteland, or they may be burnt.



Collection: In most rural areas there is no public refuse collection system. A member of the family or the family safaiwala collects the accumulated refuse regularly for final disposal. However, where a public system operates, the refuse is usually collected in wheelbarrows and transported from the house to the disposal site. This is usually as near the village as possible.

Frequent collection of refuse is necessary for good sanitation. Long intervals between collections create problems and foul smells.

Disposal: Where a collection system exists, the refuse is disposed of by the authorities concerned.

Community methods of disposal:

* **Dumping on land:** If dumping places are available, this is the cheapest method. The refuse is usually burnt to reduce its volume and minimize flies. No soil is used to cover the refuse, so flies and rats abound in refuse dumps. The place is an eye-sore to the community and emits foul smells.

* **Sanitary landfills:** Alternate layers of refuse and earth area placed on a piece of land. This prevents dogs and rats from digging up buried refuse. This methods does not create any nuisance, fire or public health hazard.

* **Incineration:** This requires porperly designed incinerators and their proper operation and maintenance. The method is very appropriate for small village where a number of incinerators could be constructed from locally available meterials.

* **Composting:** This requires frequent mixing and turning and has not been found practical to carry out on a large scale.

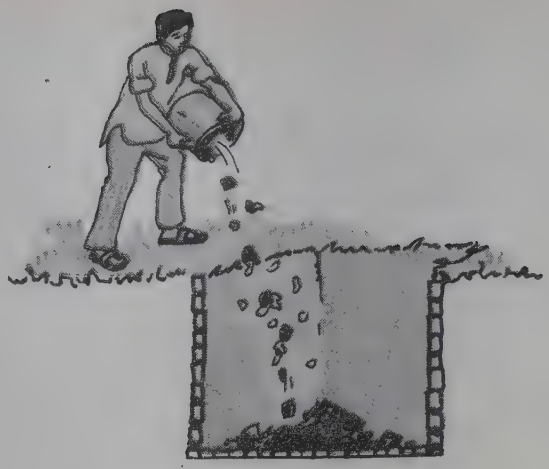
Methods of disposal used in individual houses:

* **Burial:** The refuse is deposited in pits and covered with soil.

* **Burning:** Simple incinerators are sometimes used, but usually the refuse is burnt on open ground.

* **Feeding to animals:** left over food and other garbage is fed to chickens, pigs, etc. The non-edible components of the refuse, such as paper, plastic, tins etc. are separated and are buried or burnt.

* **Composting:** The simplest home-composting method involves dumping refuse and animal manure, together with grass, leaves and other binding



material, into a compsot pit. The hole is covered with soil to prevent fly breeding and bad smells. The compost is used as a soil conditioner or fertilizer later on. Turning or mixing the compost with a rake or long pole increases oxidation and improves the quality of the fertilizer.

Compost pits are generally of two sizes.

4 metres × 3 metres × 1.25 metres

or

3 metres × 2 metres × 1 meter

The walls of the pit may be lined by bricks.

Alternate layers of refuse and cowdung in the ratio of 3 to 1 are spread in the pit, until the whole content of the pit is up to 30 cm above ground level. The uppermost portion should consist of refuse.

After six months the manure is ready for use.

Your responsibilities in relation to refuse disposal:

1. Educate the community about the relation or refuse disposal to health: Rural, people need to conserve refuse in order to produce manure. this has to be done as near their houses as possible without creating hazards to health.

In your educational activities involve the HG, the Village Heath Committee and the community leaders. Organize individual, small group and large group activities. Some of the topics for education are as follows:

—The relation of refuse disposal to health.

—The diseases which may be caused by insanitary refuse disposal.

—Proper utilization of compost pits to reduce health hazards.

—Precautions to be taken to reduce the breeding of flies and other insects and varmin.

—The hazards of dumping refuse in water drains.

2. **Survey the areas to find out how refuse is disposed of:** In your survey of the area, record the methods of refuse disposal used, and whether they are sanitary or insanitary. With this base-line information you can plan your activities and assess the progress achieved, Prepare a list of the methods of storage, collection, transport, and disposal in use. Find out the deficiencies.

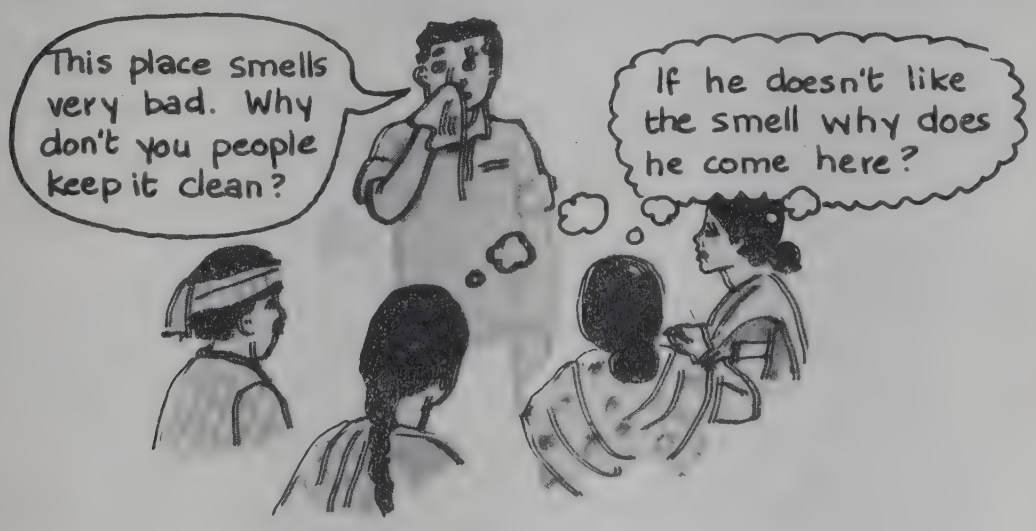
Use the following checklist to find out whether or not a compost pit is sanitary:

—Is the pit located in a place which is not likely to be flooded during the rainy season?
—Is the compost pit of the right size?
—Are the walls lined with bricks or are they unprotected?
—Is the refuse in the right proportion to the amount of cowdung being used for composting?
—Is it applied in proper layers?
—Are flies and other vermin breeding in the compost pit?

—If the pit is full, is the top layer composed of refuse?
—Is it filled up to 30 cm or more above the surface of the pit?

3. **Assess the methods in use and work our schedules for the improvement:** Based on the results of your survey, plan the improvements which you feel are necessary. Discuss them with the householders, Work out the expenses and labour involved.

Do not be discouraged it people resist your suggestion. With the help of the HG plan an educational programme which will gradually win the people's confidence. Remember that working with people needs tact and patience. Aviod using any method which will antagonize the community.



4. **Advise and assist the community in constructing disposal units:** You might find that some households have inadequate or no facilities for proper refuse disposal.

—Advise each householder about the type or disposal arrangement which is best suited to his needs.

—Estimate the cost involved in constructing the unit.

—Assist in procuring materials necessary for construction.

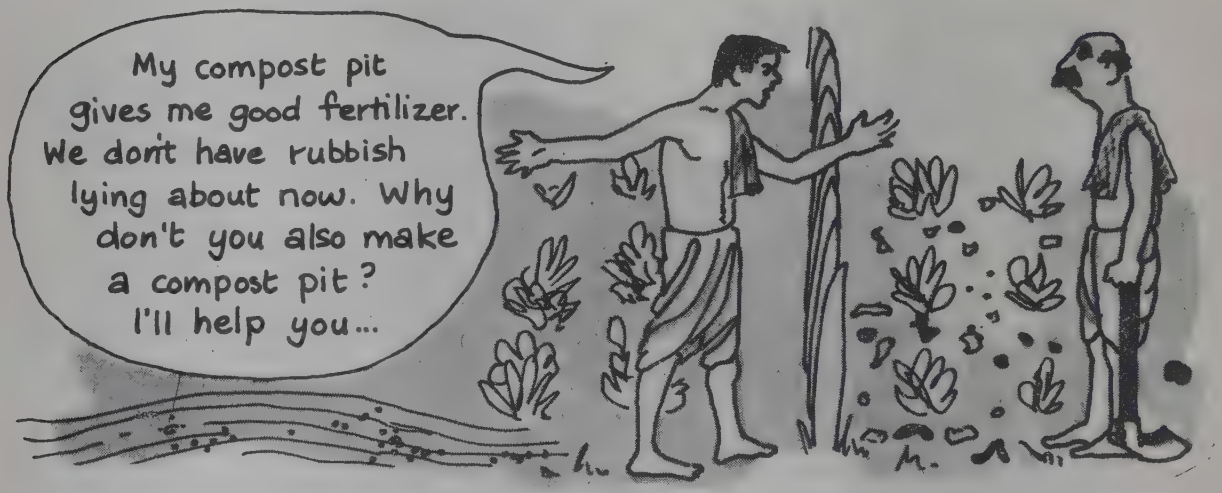
—Assist, advice and supervise the construction of the unit.

—Advice in its use.

—Supervise the way in which the unit is used and educate the householder about it proper utilization.

It would be useful if you could prepare drawings giving the actual measurements to show the householders and community leaders the type of constructions necessary for sanitary disposal of refuse.

Use scceptors in the community to demonstrate to other the successful use of sanitary methods of refuse disposal.


My compost pit gives me good fertilizer. We don't have rubbish lying about now. Why don't you also make a compost pit? I'll help you...

Dhondu has cholera. He has a bowel movement near his house.
Flies sit on his stools and the germs which cause cholera stick to their legs.
Some of these flies enter the kitchen.
The flies sit on the food and rub their legs.
Dhondu's family eats this food.
The whole family gets cholera.
Dhondu's wife Parvati has a bowel movement near the house.
Flies sit on her stools.
Some of these flies enter Nathuram's sweet shop and sit on the sweets.
Balu buys and eats these sweets.
Soon he also gets cholera.

How could the people in these pictures have prevented the spread of cholera?

Things to do

1. In your Subcentre do your have any of the following.
   (a) A kitchen garden
   (b) A soakage pit
   (c) A sanitary latrine
   (d) A compost pit

If not, ask your supervisor to help you to have them.

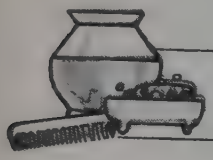
2. Select one of the villages in your area. Find out how many households in the village have soakage pits or kitchen garden. With the help of the HG tell the people about the advantages of kitchen gardens and soakage pits, Help them to construct them. Find out if they have made any difference to the village.

Note: Soakage pits should not be advised if your area tends to be water-logged.

3. Visit the Block Development Office. Find out all you can about the construction of sanitary latrines in your area:

—What sort of materials are available?
—Where can one get the materials?
—How much do they cost?
—Who can build the latrines?
—Can the block development staff visit the area and meet the people?
—Can they help those who want latrines to get them constructed?
and so on...

CHAPTER 8 PERSONAL HYGIENE



Personal cleanliness is essential for keeping healthy.

In order to remain healthy, besides living in a clean and safe environment, it is important to develop clean personal habits. These habits should be developed as early as possible in young children both at home and at school.

While teaching children to develop healthy habits, be careful not to hurt their feelings by making personal remarks. Always relate the need for personal cleanliness with the desire to be healthy.

Given below are some of the health messages which you should get across to children in schools and to their mothers.

Care of the Eyes

Our eyes are very precious. We must take great care of them and protect them from disease or injury.

Sore eyes and trachoma can be passed from one person to another:
- by using each other's towels and handkerchiefs;
- by using the same stick for applying kajal or surma;
- by letting flies settle on the face and eyelids;
- by exposing the eyes to dust and smoke.

If these infections are not treated in time a person can become blind.

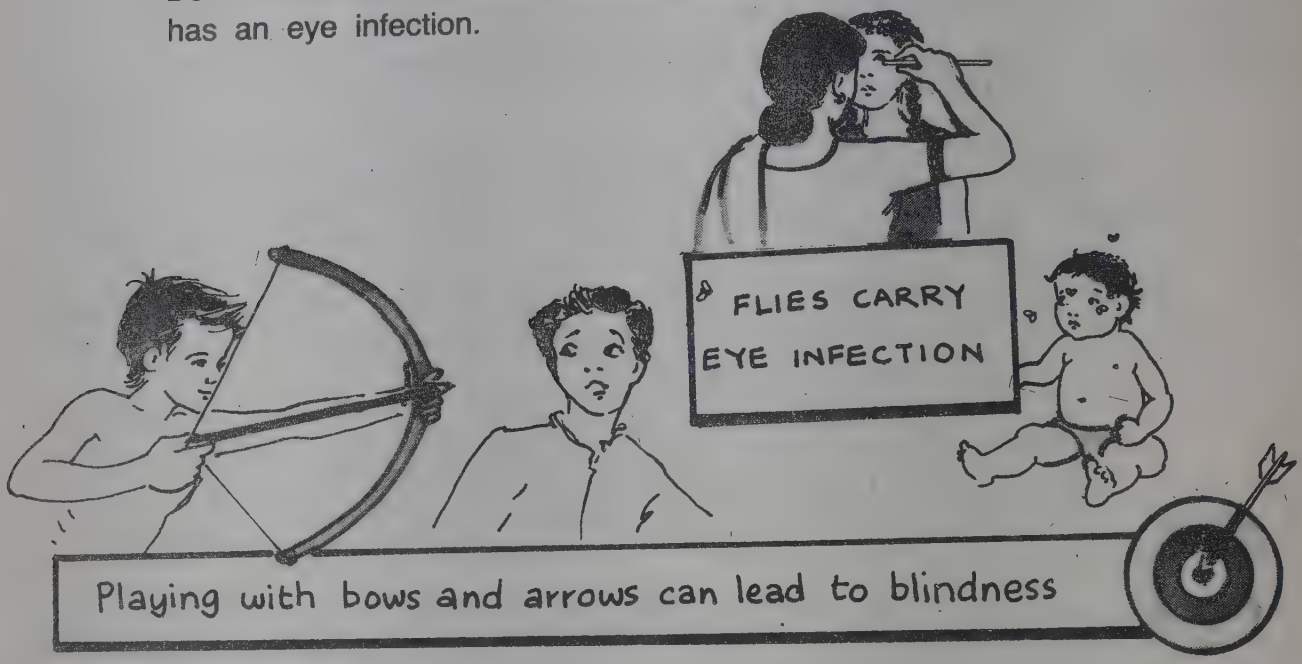
The eye can be injured by pieces of stone or glass flying into the eye, or by children throwing dust or stones at each other, or while playing with a bow and arrow.

Another way in which the eye can be damaged is by lack of vitamin A in the Diet (See Chapter 12). If this is not treated in time it can lead to blindness.

Eyesight can also be spoilt by reading in bad light, or in wrong postures, or reading books with very small print.

Points for health education:

* Wash your face and eyes well every morning when you get up.
* Do not use each other's handkerchiefs or towels, especially if one of you has an eye infection.



* Do not use each other's stick for applying kajal or surma. Or better, do not apply kajal or surma in your eyes at all.
* Do not let flies sit on your face and eyelids or on the face and eyelids of your younger brothers and sisters.
* Do not throw dust, stones or darts at each other or aim at anyone with a stick or bow and arrow.
* Eat plenty of dark green leafy vegetables like palak and methi, and yellow fruit and vegetables like papaya or carrot.
* When you are reading or writing, use a good light. The light should come from your left.

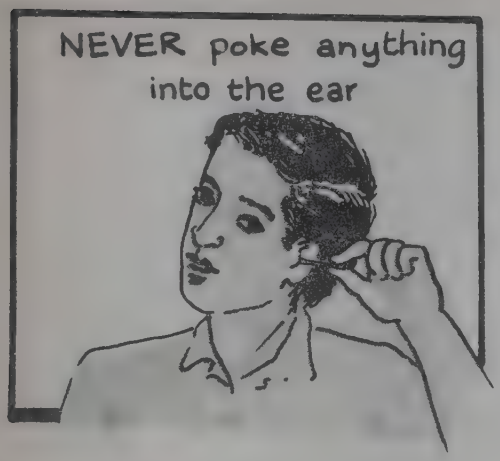
Care of the ears

Some people remove wax from their ears by poking hairpins or matchsticks into the ears. This is very dangerous and can lead to injury or infection of the ear.

Insects sometimes crawl into the ear and block the ear passage or cause infection.

Swimming in dirty water can also lead to ear infection.

Hearing can be damaged by exposure to sudden or constant loud noises such as explosion, loud blaring music, machinery, or people shouting.



Points for health education:

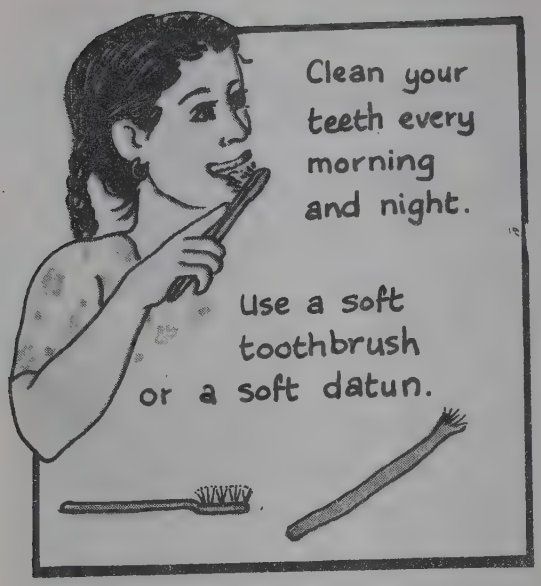
* When you have your bath, wash your ears well. Do not forget to wash behind the ears. Dry your ears well after bathing or swimming.
* Do not swim in dirty ponds.
* Never poke sticks or hairpins into your ears. If you feel that your ears are blocked, go to the doctor. He will remove any extra wax which may be inside the ear.
* Protect your ears from insects especially if you sleep on the ground. Keep the ground and your bedding clean. If anything goes into your ear, go to the health worker or doctor.
* Avoid exposure to loud noises. If necessary put cotton wool in your ears. Do not add to noise yourself by firing loud crackers (atom bombs), or shouting, or blowing noisy horns. Never shout or make loud noises in anyone's ear.

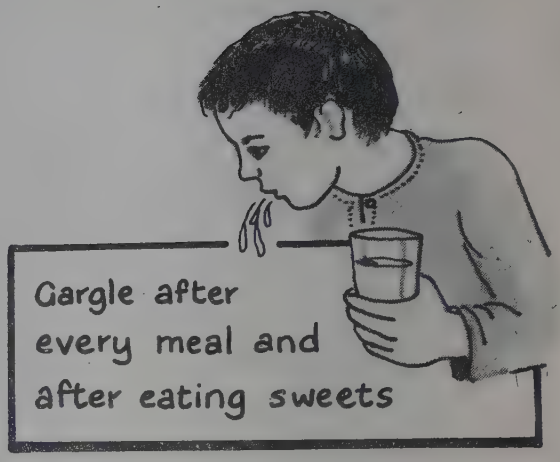
Care of teeth

Healthy teeth are essential for proper nutrition. If teeth are not properly cared for, they will develop cavaties or infection. This will result in toothache and inability to chew the food. If the food is swallowed without being properly chewed, it is more difficult to digest.

Infection in the teeth can lead to general ill health.

After a meal and especially after eating sticky sweets, food particles remain in between the teeth. If they are not removed, these food particles decay and produce substances which destroy the outer covering or enamel of the teeth. It is therefore important to remove remaining food particles at the end of a meal. This can be done by chewing fibrous vegetables or fruits like carrot or apple, or by brushing the teeth and rinsing the mouth after the meal. Using pins or other pointed objects to pick the teeth can injure the gums and cause infection.





Points for health education:

* Brush the inside and outside of your teeth and rinse your mouth with clean water. Do this every morning and night and after each meal. Use a soft toothbrush or a soft twig (datun) of neem, babul, jamun, tamarind or banyan to brush the teeth. Instead of toothpaste, you can make your own toothpowder at home from a mixture of finely powdered salt and charcoal, or a mixuture of well-pounded salt and charred paddy husks. Do not use any gritty material to clean your teeth.
* Do not pick your teeth with pins or other pointed objects.
* Do not eat too many sugary or sticky sweets. After eating any sweets, always rinse your mouth well.
* At the end of your meal chew a piece of carrot, apple, pear or coconut.
* Do not crack nuts or other hard objects with your teeth. A broken tooth cannot be replaced.
* If you have a toothache, go to the doctor and have the tooth attended to. If a bad tooth is neglected, it will get rotten and fall out or have to be pulled out.

Care of the nose and throat

Many people have the habit of picking their noses, or blowing their noses and spitting anywhere on the ground. These habits are unsightly, unhygienic, and make the surroundings dirty. They also spread infections of the nose and throat and diseases like tuberculosis.

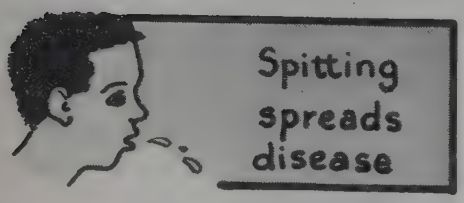
Coughing or sneezing on to other people is also dangerous. Germs from a sick person can be blown on to a healthy person, can enter his body, and make him ill. Diseases like tuberculosis, coughs and colds, diphtheria and whooping cough can be spread in this way.

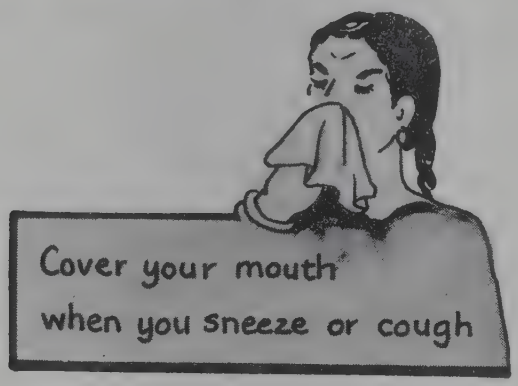
Breathing deeply through the nose fills the lungs with filtered air and keeps them healthy. If a person breaths through the mouth. the air is not filtered and much of it goes into the stomach instead of the lungs.

Shouting and talking loudly can strain the throat and cause hoarseness or even temporary loss of the voice.

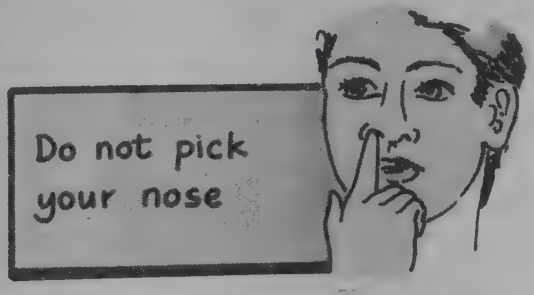
Points for health education:

* Do not blow your nose or spit anywhere on the ground or wall. Clear your nose or throat at the nearest tap or washing place. If that is not possible, use a handkerchief or clean soft rag such as an old sari. This can later be washed or burned.





* Do not cough or sneeze on to other people. Turn your head away and cover your mouth and nose with your hand or with a handkerchief or clean rag.
* Do not pick your nose.



* Every morning practise breathing deepiy through your nose with your mouth closed. Do this in front of an open window or outside in the open air.
* Learn to speak softly. Do not shout or speak at the top of your voice.

Care of the skin, nails and hair.

During the day we gather a lot of dust and sweat on our bodies, especially in the hot dusty months of the year. If this is not removed by frequent bathing, the skin can harbour germs. This leads to boils, sores, ringworm, or infestation with scabies or body lice. Also, a dirty sweaty skin gives off an unpleasant smell.

The hair must also be washed and combed regularly to keep it clean and free from lice. Schoolchildren, particularly girls with long hair, are likely to get head lice from their campanions.

Long dirty nails are not only ugly to look at but are also unhygienic. If the hands are not properly washed after going to the toilet, the nails can harbour germs or threadworm eggs. When such a person handles food, the germs or worm eggs pass into the food can infect those who eat the food.

Dirty clothes can harbour insects like bugs, lice or fleas, or germs which can cause skin infections. They also cause bad smell.

Clothes should be clean and comfortable and should protect one from heat and cold.

Walking barefoot in places which are used for defaecation can lead to hookworm (See Chapters 7 & 18). This can be prevented by using footwear. Footwear can also protect one from thorns and snake bite or scorpion sting. Shoes which are too loose or too tight, or which are worn out are uncomfortable to wear and can deform the feet. Shoe bite and wounds from protruding nails in the shoe can be dangerous as they can lead to tetanus.

Points for health education:

* Take a bath every day. Use soap and water or a soft paste made from a small amount of gram flour mixed with a little water. Scrub the body, especially the back and feet, with a brush, or a rough cloth, or a dried gourd.Take care to wash the folds in the armpit and groin.

* Wash the hair at least once a week and more often during the hot weather. Comb it regularly. If it is long, plait it neatly and tie the ends with a ribbon or a strip of cloth.

* Every evening after school comb the hair with a fine toothed comb to look for lice and nits (eggs). If there are lice in the hair, take the necessary treatment before the number of lice increases.

* Keep your fingernails and toenails short and clean. Cut your fingernails once a week. If you work in the garden or field scrub your nails with a bursh to take out the dirt.

* Wash your hands well with soap and water after you go to the toilet and before taking food.

* Always wear clean clothes. Wash your clothes frequently especially in summer. If you have to wear the same clothes on the next day, keep them to air or in the hot sun. Clothes worn next to the skin (under clothes) should be washed every day.

* Wear light and loose clothes. These should be cool in summer (e.g. cotton garments) and warm in winter (e.g. woollen or padded garments).

* When you go out of the house, wear well-fitting shoes, sandals or chappals. See that there are no nails coming through the sole of your shoe.
* When you go home, leave your footwear outside the house. Wash your feet before coming into the house.

Care of the bowels and bladder

For a person to keep good health and carry out his daily work comfortably and

well, the bowels and bladder should be emptied at regular intervals. Constipation can cause pain and discomfort and can make a person cross and irritable.

Eating plenty of fresh fruits, vegetables, and wholemeal bread, and drinking plenty of water can help one to have regular bowel movements.

A person should empty the bladder whenever the need is felt. Drinking plenty of water and other fluids flushes out the kidneys. This is necessary in hot weather and in places where people get stones in the kidney and bladder.

Points for health education:

* Drink plenty of water, coconut water, tea and other fluids, especially in hot weather.
* Eat plenty of fruit, raw salads, green leafy vegetables and wholemeal bread.
* Take regular exercise and take an active part in games.
* Try to keep a regular time every morning for emptying the bowels.
* Empty the bladder as soon as you get up in the morning and just before you go to sleep at night. While at school, go to the toilet at regular intervals during the breaks between classes.
* Use the latrine and keep it clean.

Sleep, rest, exercise and posture

Sufficient rest and sleep are essential for normal growth and development. A healthy child generally spends a very active day at school, both mentally and physically. The child needs nine to ten hours of restful sleep in a quiet, well-ventilated room. The sleep should not be disturbed by the child being too hot or too cold, or by his being bitten by mosquitoes, bugs and other insects.

The bed should be clean, made freshly every day, and bedding should be aired in the sun at regular intervals.

Sleeping in a crowded room and sharing beds with infected persons can lead to the spread of respiratory diseases like tuberculosis and skin diseases like scabies or leprosy.

Exercise is euqally important for healthy growth and development. Taking an active part in physical training and outdoor games develops the muscles, keeps the body supple, stimulates the appetite, provides fresh air and sunlight, and keeps the mind active.

At all times the child should be encouraged to maintain good posture—while sitting, standing, walking or running. Defects in posture may be due to:

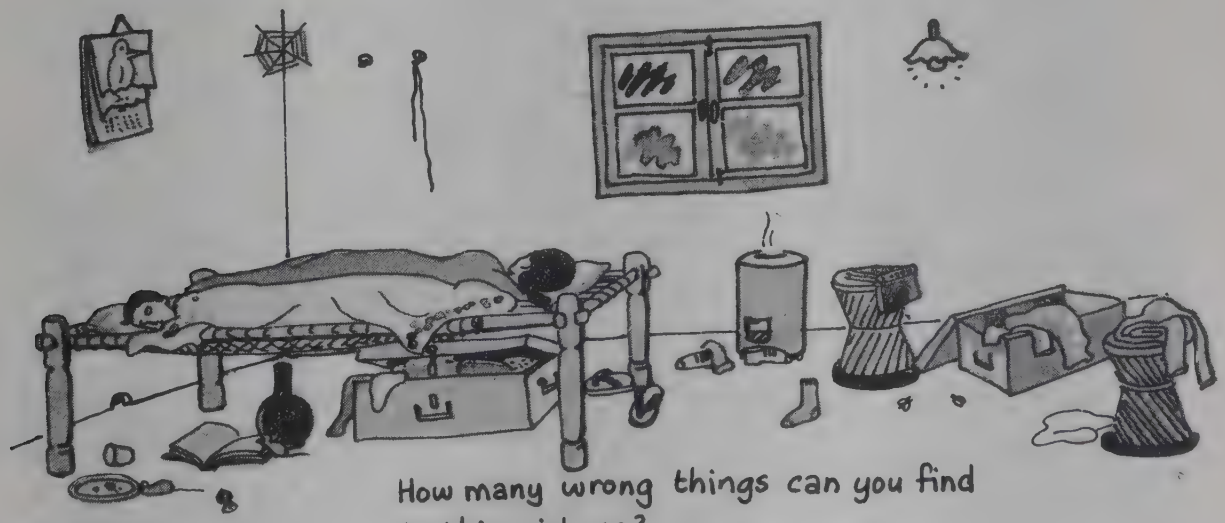
- defects or injuries of the spine or limbs which may need an operation.
- muscular wasting or weakness following illness; this can often be wholly or partly overcome by suitable exercises;
- self-consciousness, anxiexty or depression, and ill-fitting clothes or shoes;
- laziness and habit.

Always stress the fact that 'perfect posture' makes a person more attractive. At the same time it ensures that all the organs in the body are in proper position and are able to function normally.

Points for health eduction:

* Go to bed early and rise early.
* Sleep in a clean, quiet, well-ventilated room.
* Use a light covering in summer and a blanket or quilt in winter.
* If necessary use a mosquito net or apply a mosquito repellant on the body before sleeping.
* Do not sleep in a closed room in which there is a charcoal fire or sigree burning.
* Sleep in a separate bed or on a separate mat.
* Wear clean loose garments to sleep in.
* In the morning air the bedding and roll it up neatly or make the bed.

How many right things can you find in this picture?



How many wrong things can you find in this picture?

* Put the bedding in the sun from time to time.
* Change and wash the bed linen frequently.
* Take regular exercise.
* Take active part in physical training and outdoor games in your school.
* Always keep your back straight when you sit, stand or walk. A boy or girl who has a good posture looks much more attractive than one who stoops or walks with a slouch.
* Good posture helps the different parts of your body to function normally. This helps to keep you healthy.

Leisure and recreation

Besides studying, working, playing games, taking exercise, taking meals, keeping ourselves and our surroundings clean, resting and sleeping, most of us still have some spare time left in which we can do what we like best.

There are many hobbies and interests which we can develop, and which can give us enjoyment and provide recreation for our minds and bodies. For some of us these hobbies involve physical activity such as walking, cycling, swimming, gymnastics, or playing cricket, kabaddi or other sports. Others may be interested in less active pursuits like carpentry, model-making, sewing, cooking, gardening, or indoor games like chess or carrom. Still others prefer to spend their spare time in listening to music, singing, painting, pottery, stamp collecting, reading or writing.

There are a number of ways in which we can spend our spare time. This can help to keep us healthy and happy, and can add pleasure to our waking hours.

Regular exercise and good posture

Things to do.

1. Think of interesting ways of teaching children about personal hygiene. For example, with the help of the school teacher, you can do the following:

(a) Teach the children songs about keeping healthy.

(b) Prepare a simple play on 'Clean habits lead to good health' and let the children act it.

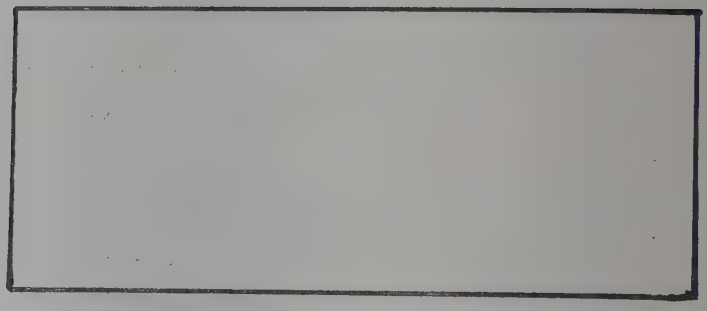
(c) Let the children role play how to teach their younger brothers and sisters healthy habits.

(d) Make up games for teaching about health like snakes and ladders.

2. Get the children to prepare posters on clean habits and put up an exhibition. They can draw their own pictures *or* use the ideas in the illustrations in this chapter *or* cut out pictures from old magazines.

PART III

FAMILY WELFARE



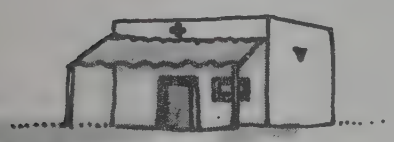
Chapter 9 Maternal Care
Chapter 10 Child Care
Chapter 11 Family Planning
Chapter 12 Nutrition
Chapter 13 Immunization programme

The care of the child starts in its mother's womb.

The health care of mothers should begin long before pregnancy. The basis for good health is laid in early childhood by protecting female children from disease and environmental hazards through immunization, good nutrition, regular health assessment, and prompt medical care. Many growing girls do not receive these services. As a result, a large number of adult women are in a poor state of health. They therefore need prenatal care so that the risk which they face during pregnancy and childbirth will be less.

Your responsibilities relating to maternal health care:

The Health Worker Female is mainly responsible for the care of women during pregnancy and labour and after delivery. However, you should know what it involves and understand why every pregnant woman must have proper care during pregnancy and childbirth. This will help you to educate the community to use the services for maternal care. You will also be able to identify high risk pregnant women when you visit the homes and refer them to the HWF or to the PHC in time.



Prenatal health care

Health services during pregnancy help:

- To identify and treat any abnormalities found as early as possible.
- To ensure the birth of a mature, live, healthy infant to a healthy mother.
- To prepare the women for labour and delivery.
- To teach the woman how to care for herself during pregnancy so that she can keep healthy.
- To prepare her to care for her baby.

Each pregnant woman should be examined by the HWF *at least* four times during her pregnancy, viz.

- Between the 20th and 22nd week
- Between the 28th and 30th week
- During the 34th week
- During the 38th week.

Good food during pregnancy produces healthy babies

If she has not been seen by the HWF, inform the HWF.

If she is a high risk case, or if she has any complications, she should be referred to the PHC.

Prenatal care involves the following:

* A complete history of the present and previous pregnancies.
* An abdominal examination to determine the position and condition of the baby.
* A general examination, including weight, height, blood pressure, urine examination and haemoglobin estimation.
* Immunization of the mother with tetanus toxoid (See Chapter 13).
* Treatment of minor ailments.
* Advice regarding diet, rest, exercise and personal hygiene.
* Teaching the woman what are the danger signals during pregnacy for which she must immediately seek medical care at the PHC.

High-risk pregnant women

If any of the following conditions is present, the pregnant woman is a 'high-risk' case and should be referred to the MO PHC.

* She is primipara (i.e. she is having her first child), especially if she is
* 17 years or over 35 years of age.
* 17 years or over 35 years of age.
* She is below 145 cm in height.

* At the 20th week of pregnancy she weighs 40 kg or less;
the weight gain after the 20th week of pregancy is less than 1 kg per month.

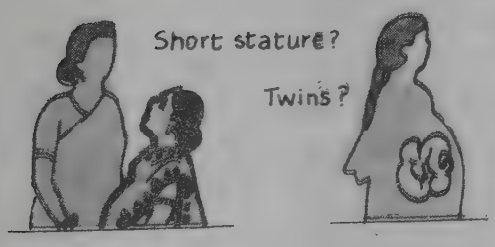
* She has had four or more pregnancies.

* She had problems in previous pregnancies, e.g. abortion, stillbirth, premature delivery, severe bleeding, swelling of the body and fits, Caesarean section or instrumental delivery.

* She has a medical condition, e.g. tuberculosis, severe anaemia, heart disease, kidney disease of diabetes.

* She has abnormal findings in the present pregnancy, e.g. vaginal bleeding, oedema, passing less urine, wrong position of the foetus, reduced or absent foetal movements, excess fluid in the womb, or twin pregnancy.

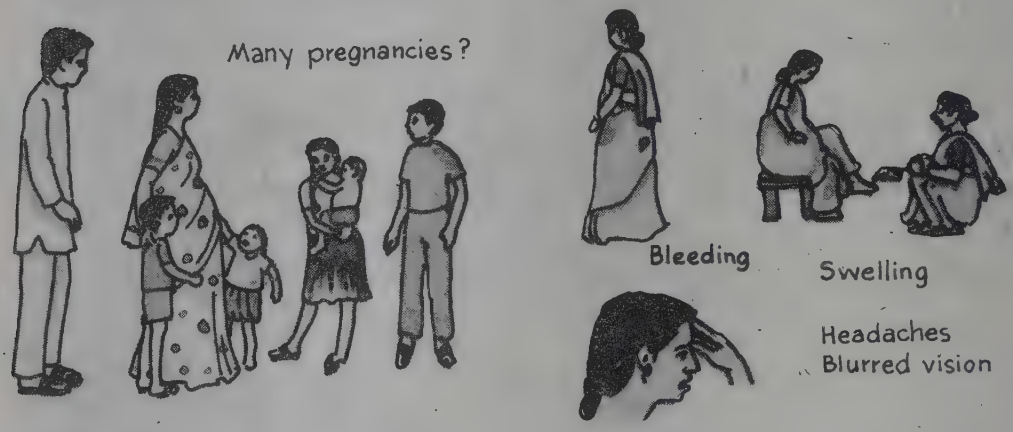
* She has conceived after treatment for infertility.



Danger signs in pregnancy:

The pregnant woman should be taught the danger singnals which require her to report immediately to the HWF or seek care at the PHC.

* Vaginal bleeding no matter how slight
* Swelling of the face and fingers
* Severe continuous headache
* Dizziness or blurring of vision
* Pain in the abdomen
* Persistent vomiting
* Chills and fever
* Sudden gush of fluid from the vagina
* Yellow colour of the eyes or skin (jaundice).



Intranatal care:

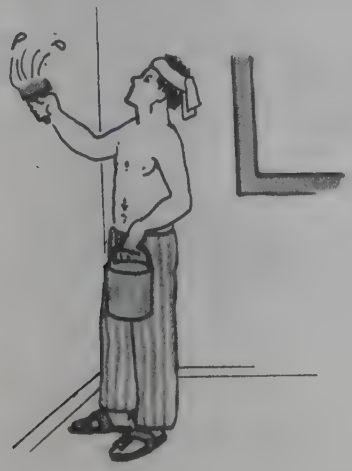
Intranatal care begins with the onset of labour. It ends after the mother has been delivered and she and her baby have been examined to see that both are in good condition.

In the last few weeks of pregnancy, the woman or her family should be told to prepare for delivery. If the delivery is to take place at home, tell the family to make the following preparations:

— Select a well-lighted and well-ventilated room for delivery. It should not have been occupied by anyone with an infectious disease.

— Plaster the walls mud *without* cow dung.

— Clean the room and, if possible, whitewash the walls and ceiling.



— Collect pieces of soft, absorbent, cotton, cloth, e.g. from an old saree or dhoti. Wash them with soap and water, dry them in the hot sun, and wrap them in a clean cloth or newspaper.

— Put the charpoy or mat which is to be used for delivery in the sun. If sheets are to be used, they should be washed, dried, and kept ready for use. Put blankets in the hot sun.

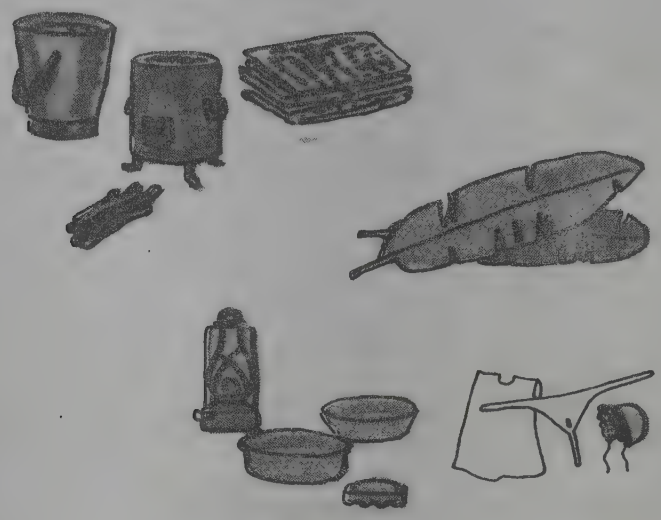
- Collect and keep the following materials ready for delivery:

* Clean newspapers or banana leaves
* A chulha or stove with sufficient fuel
* A large container or pot or two big degchis
* Shallow mud pots (new)
* A supply of clean, soft rags

* Oil for bathing the baby
* Soap

* Clean clothes for the infant and mother

* Lantern.



— Arrange for some members of the household to inform the HWF/trained dai if necessary.

Good intranatal care helps:

- To ensure that the delivery is conducted in a clean and aseptic manner.

- To detect any complications of labour and deal with them or refer the woman in good time to the PHC or nearest hospital.

- To relieve pain or discomfort in the mother, and prevent exhaustion, injury or loss of blood.

- To encourage and reassure the woman, especially if she is having her first baby.

Postnatal care

The postnatal period or puerperium begins after the third stage of labour. It includes the first six weeks after delivery. During this time the woman's reproductive organs gradually return to their normal size and shape.

The aims of postnatal care are as follows:

- To observe the condition of the mother and her baby and confirm that both are progressing normally.

- To encourage breastfeeding and ensure that the baby is receiving sufficient nourishment.

- To ensure care of the perineum and of the breasts.

- To treat health problems of the mother and baby.

- To identify and refer mothers and infants with complications to the PHC.

- To teach the mother how to care for herself and her baby.

- To encourage the mother to space or limit her family.

Breastfeeding

Breast milk is the most suitable food for infants and there is no substitute for it.

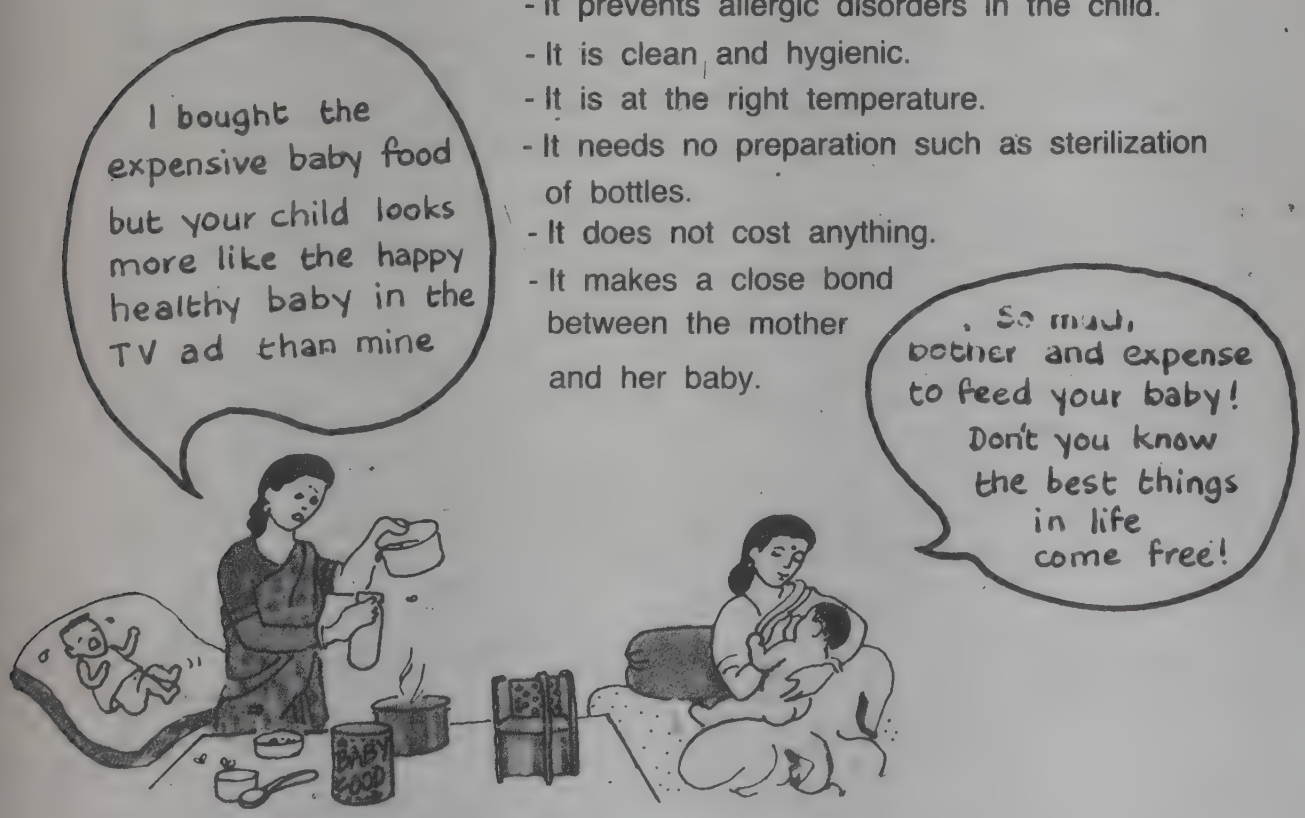
Advantages of breast milk:

- It provides all the nutrients in the right proportion needed by the baby for proper growth.

- It is easily digested and absorbed.

- It contains special substances which protect the child from infections.

- it prevents allergic disorders in the child.
- It is clean and hygienic.
- It is at the right temperature.
- It needs no preparation such as sterilization of bottles.
- It does not cost anything.
- It makes a close bond between the mother and her baby.

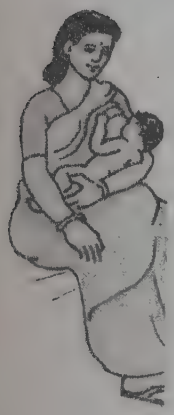

I bought the expensive baby food but your child looks more like the happy healthy baby in the TV ad than mine
So much bother and expense to feed your baby! Don't you know the best things in life come free!
BABY FOOD

Points for health education:

- Every mother should breastfeed her baby. Almost all mothers can produce more than enough milk for their babies' needs. eds.

- A nursing mother should eat slightly more food than she usually eats. She should take plenty of cereal, green leafy vegetables, dal, pulses, and milk, or meat, fish and eggs. She should also drink plenty of fluids.

- Care of the breasts should start during pregnancy.



- Breastfeeding should begin within two to three hours of birth. For the first few days, the breasts are full of thick, yellow *colostrum*. This is very nourishing for the newborn infant as it is rich in proteins, minerals and vitamins. It also contains antibodies which protect the child from infections and allergic disorders.

- The baby should be put to the breast when it cries for a feed, i.e. every two or three hours.

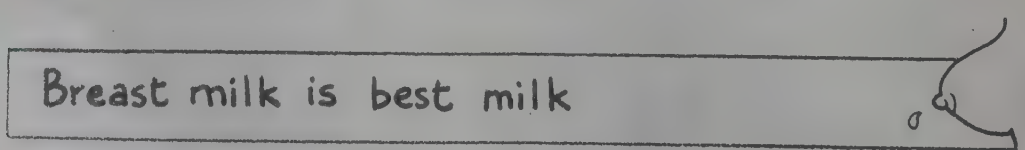
- The mother must continue breastfeeding even when her baby is ill. This is because the antibodies in breast milk protect the baby from other illnesses. Breast milk also gives the baby the necessary nourishment and strength to recover from the illness.

- breastfeeding should be continued even when the mother is sick. However, if the mother has very high fever, jaundice, or septicaemia, she should stop breastfeeding. In such cases she should express the milk and throw it away until she has recovered. This will ensure that the flow of milk is not reduced and that she can resume breastfeeding her baby when she is well.

- A mother can continue feeding her baby without any ill effects during her menstrual periods, or if she becomes pregnant.

- A woman can become pregnant while she is breastfeeding her baby. The only sure way to prevent conception is for the couple to use a reliable method of contraception.

- Breastfeeding should continue for as long as the mother is able to breastfeed her baby and certainly through the first year of life.



Things to do

1. On your visits to your area, if you find any pregnant women, ask if they have been examined by the HWF. Make a note of all those women who have not been examined and inform the HWF. Help the WHF to give all pregnant women in your area tetanus toxoid.

2 Meet the trained dais in your area. Collect information about the deliveries conducted by them. Share this information with the HWF.

Nutritious food, cleanliness and immunization keep children healthy.

The aims of providing child health services are:

* To prevent malnutrition, communicable diseases and accidents.
* To identify and treat minor ailments as early as possible.
* To teach parents, especially mothers, how to care properly for well children as well as for sick children.
* To supervise the health of pre-school age children.

Your activities relating to child health care:

1. Identify high-risk infants and children.
2. Examine and treat or refer the child who is ill to the PHC.
3. Weigh and measure the child regularly to assess growth (See Chapter 12).
4. Assess the progress of development of the child
5. Immunize the infant against diphtheria, pertussis, tetanus, tuberculosis, poliomyelitis, and, if the vaccine is available, measles (See Chapter 13).
6. Assist the HAM in immunizing school children with DT, TT and Typhoid vaccine (See Chapter 13).

7. Teach parents what to do to keep the child healthy, and how to carry out simple remedies for the child who is ill.

8. Make home visits for supervising the health care of children.

9. Promote child spacing and prevent unwanted pregnancies (See Chapter 11).

10. Encourage families to improve the environment in and around their homes. (See Chapters 6 and 7).

Identification of high-risk infants and children:

The characteristics of high-risk infants and children under five years are:

- Low birth weight (under 2.5 kg) or one of twins.
- Product of a difficult delivery.
- Only child born after many years of marriage.
- Presence of congenital defects.
- Breastfeeding not established or stopped before 3 months. ıths.
- Delay in giving supplementary foods.
- No progressive weight gain, or weight is between lines II and III on the weight chart.

- Birth order five or more.

- Spacing of children is less than two years.

- Mother is dead.

- Mother works outside the home.

- Either parent is chronically ill or alcoholic.

- Mother has low intelligence.

If you come across any high-risk infants during your home visits, bring them to the notice of the HWF.

Whenever you encounter a newborn infant (within a week after birth), look for the following complications:

* The baby is unable to suck.
* It does not urinate freely.
* It has not passed stools within 24 hours after birth.
* It has fever.
* It has jaundice.
* It has a birth injury or malformation.

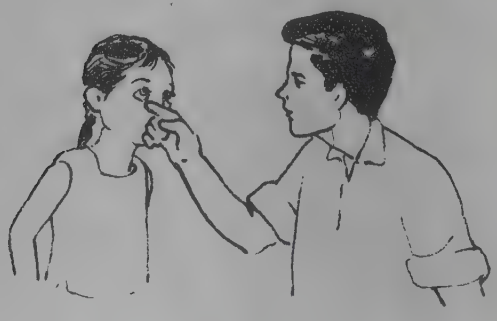
If any of these complications is present, inform the HWF and/or refer the baby with its mother to the PHC.

Health assessement of young children from zero to five year:

This includes:

- Taking a history

- Carrying out a physical examination:

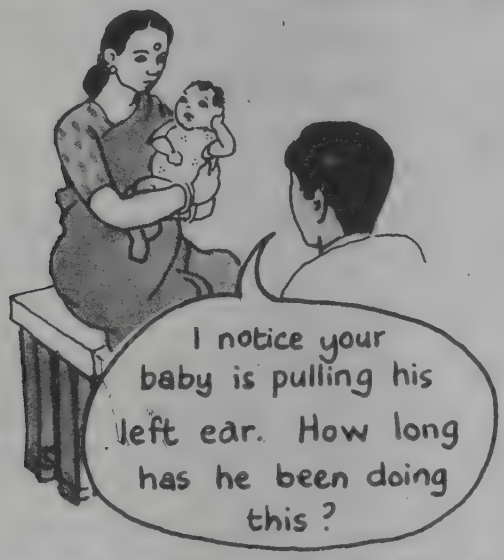


- Inspection (looking and hearing)
- Palpation (feeling)
- Measurements
- Temperature, pulse and respiration
- Developmental milestones.

Points to remember when taking a history of a young child:

- Introduce yourself and greet the mother and her child in a friendly manner. Spend a few minutes getting acquainted with them, especially if the mother or child seem anxious, shy or nervous.

- Provide some privacy for the interview when other are present.



Use simple words which are common in the area and simple short sentences to avoid misunderstanding.

- Be attentive to what the mother says about her child, and how she responds to your queries, e.g. she is eager, interested in sharing information, apathetic, etc.

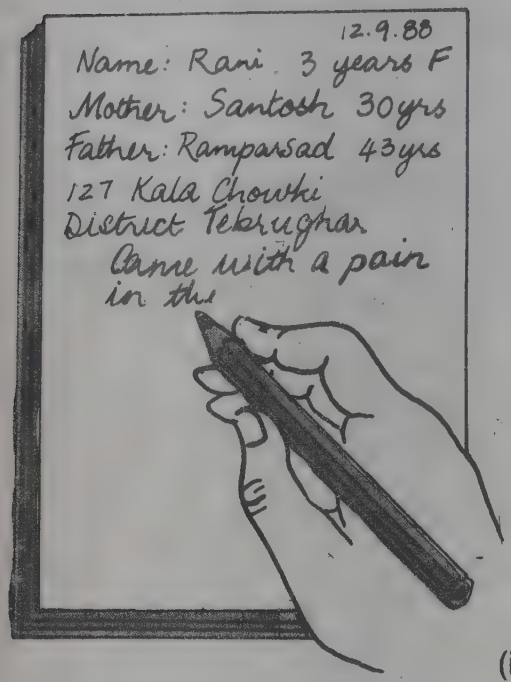
- Share you observations in order to obtain more information about the problem.

- The developmental history should include an assessment of how the child's physical, mental and social growth are progressing.

- Note how the mother handles her child when he misbehaves in your presence. This will give you valuable clues about the kind of guidance in health care and discipline that the mother may need.

Guide for taking a history:

If child is well:



(i) Identifying information

Name of child and his parents
—Address
—Age (date of birth where possible)
—Sex
—Religion
—Date of admission or registration

(ii) Past history
—Illness
—Accidents
—Hospitalization
—Operation

(iii) Natal and neonatal history

- Birth order
- Duration of pregnancy
- Course of labour and delivery
- Condition and progress of baby during the first month
- Feeding
- Bowels and bladder
- Immunizations (after 6 weeks)
- Developmental milestones

(iv) Family and social history

- Health of mother, father, and others in household (including history of tuberculosis, leprosy, and addiction to drugs or alcohol)
- Person whos looks after child when mother is away
- Environmental hazards
- Age of next older child

If child is ill:

(i) to (iv) Same as for well child.

(v) History of present illness:

- What is the present complaint?
- How long has the child been ill?
- How did the sickness start?
- How did it progress?
- Has anything made the condition better or worse?
- Has any treatment been given and by whom?

Points to remember when carrying out a physical examination of a young child:

- Note the general appearance of the child as soon as you see him and before the examination is started. What you observe can give you valuable clues about his present health, e.g.

  Is well nourished, smiles, responds to people and is alert to surroundings;

  Or

  Is thin, puny, listless, quiet, looks sad, does not respond to people or surroundings.

- If the child is frightened, reassure him so that he will allow you to examine him.
- Keep the child on a table or on the mother's lap.
- Ask the mother to remove the child's clothes gradually to prevent unnecessary chilling and to reduce resistance and uncooperative behaviour by the child.
- Carry out the examination as quickly as possible.

- Follow a sequence in examining the child so that nothing is forgotten (See Annexure 10.1). Decide on the extent of examination depending on:

  * whether the child is well or ill;

  * when the previous examination was done.

- Take the temperature, pulse and respiration as part of the physical examination (See Chapter 19).

- Weigh and measure the child. If a weighing scale is not available, measure the mid-upper-arm-circumference. Record your findings in the child's weight chart (See Chapter 12).

- Use the chart on Important Milestones in Growth and Development (See Annexure 10.2) to assess the child's achievement of milestones for his age.

REMEMBER THAT ONE CHILD WILL DIFFER FROM ANOTHER. YOUR MAIN CONCERN SHOULD BE FOR THE CHILD WHO DOES NOT SHOW A PROGRESSIVE INCREASE IN WEIGHT AND HEIGHT AS HE GROWS OLDER.

Health teaching about child care :

Health education is especially important for preventing malnutrition, accidents and disease among young children. Health teaching should be given each time you mee* with parents.

Some of the topics in child care that you should talk about individuals and groups in the community are:

- Feeding of young children especially under 3 years (See Chapter 12)

  * when to start supplementary feeds

  * what to feed

  * how to feed

  * how often to feed

- Importance of personal and environmental hygiene (See Chapters 6, 7 and 8)

- How to recognize early signs of illness
- How to carry out simple health measures for sick children
  - to bring down fever
  - to control diarrhoea
  - to reduce nasal congestion
  - to prevent constipation
  - to feed sick children
- Accident prevention (See Annexure 10.3)
- Growth and development of children including the significance of regular weight gain and increase in height (See Chapter 12)
- Need for immunizations (See Chapter 13)
- Benefits of regular attendance at MCH clinic
- Benefits of sending children to Anganwadi

  - to provide the child with supplementary nutrition
  - to learn to play and get along with other children
  - to increase the child's ability to express himself
  - to help the child to develop healthy personal habits.

CHILDREN LEARN WHAT THEY LIVE

If a child lives with criticism, he learns to condemn.
If a child lives with hostility, he learns to fight.
If a child lives with ridicule, he learns to be shy.
If a child lives with shame, he learns to feel guilty.
If a child lives with tolerance, he learns to be patient.
If a child lives with encouragement, he learns confidence.
If a child lives with praise, he learns to appreciate.
If a child lives with fairness, he learns justice.
If a child lives with security, he learns to have faith.
If a child lives with approval, he learns to like himself.
If a child lives with acceptance and friendship, he learns to find love in the world.

Things to do

1. In each village in your area find out:

   (a) How many children there are under five years of age

   (b) How many of these are high-risk children

   (c) How many children under one year are still not immunized with

   *BCG *DPT *Polio *Measles (if available in your area)

Take the help of the HWF in collecting this information.

Plan with her:

   (a) How to deal with the high-risk children

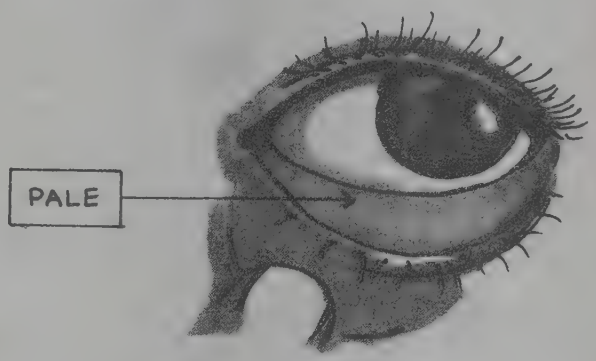
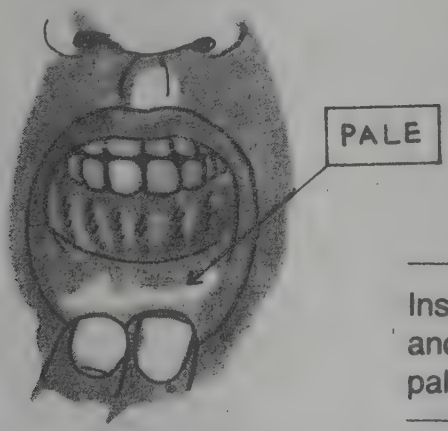
   (b) How to protect all the children by immunization.

2. Prepare a chart or a series of flash cards on Prevention of Home Accidents in Children. Use it in your talks to parents or to school children.

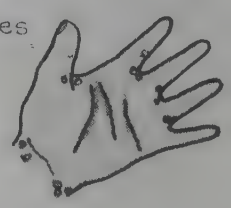
3. Make a note of all health problems which you come across in children. Discuss these with the HAM/HAF/MO PHC.

ANNEXURE 10.1

Guide For Examining Children Under Five Years

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
SKIN			
i. Note the colour of skin covering the body and mucous membranes and whether there are any depigmented areas, bluishness, pallor or yellow tinge	Normal colour for race or ethnic group; no depigmented areas	Bluish colour of lips and nails associated with difficulty in breathing	Heart disease
			
			
		Inside of lower lip and conjunctiva are pale	Anaemia and malnutrition
		Leprosy Light coloured areas which cannot feel touch	Leprosy

What to look for in each part of the body	*Norma findings*	*Deviations from normal*	*Suspected health problem*
ii. Look for rash, sores or blisters with crusting, round, itchy, scaly patches and bruised areas.	Clear smooth skin	Rash or sores with crusting	Skin infections, measles, chicken pox, or scabies
		Round, itchy, scaly patches	Ringworm
		Bruising of skin	Injury
iii Test the elasticity of the skin	Flexible elastic skin	Dry, inelastic skin	Dehydration or severe malnutrition
iv Test for oedema (swelling)	None	Puffinness or pitting oedema	Malnutrition or kidney disease

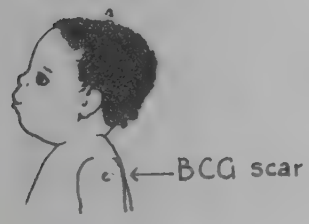


Lift skin by pinching between thumb and finger. The child is dehydrated if the skin does not immediately fall back to normal.

Press skin – pit remains when finger is removed

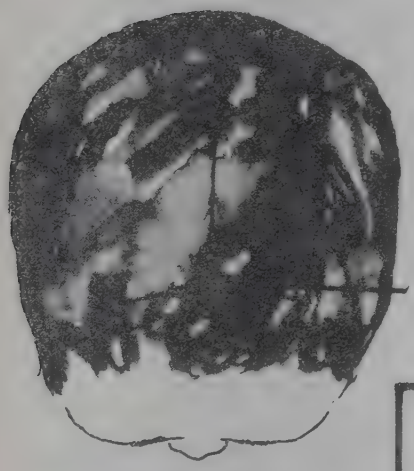
EXAMINE THE SKIN IN DETAIL WHENEVER YOU EXAMINE A YOUNG CHILD, IT CAN OFTEN GIVE CLUES TO THE PRESENCE OF DISEASE IN OTHER PARTS OF THE BODY.

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
v. Look for presence of BCG scar	BCG scar on left shoulder	absence of scar for BCG vaccination	Needs BCG vaccination.



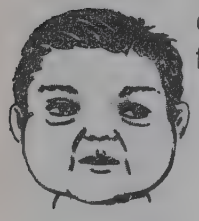
HEAD, FACE AND NECK

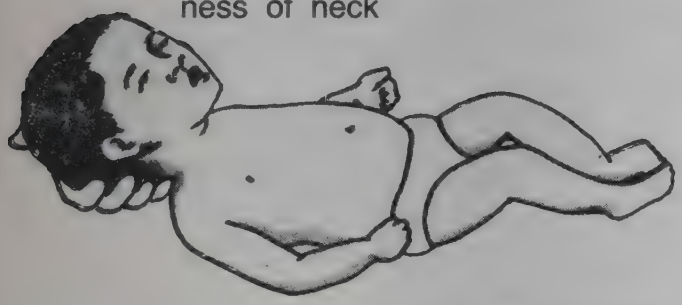
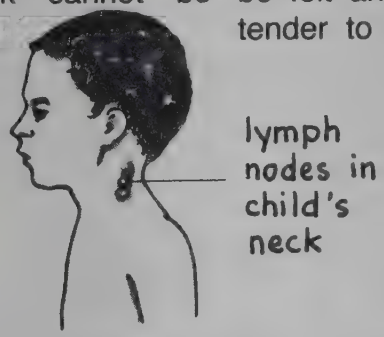
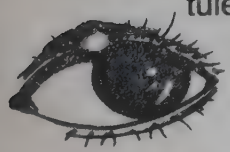
i Feel for the anterior fontanelle	Flat and soft to touch in infants under 19 months (closes between 9 and 19 months of age)	Sunken fontanelle	Dehydration or severe malnutrition
		Bulging or hard fontanelle	Meningitis

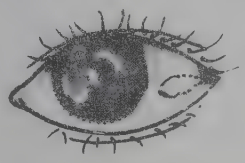
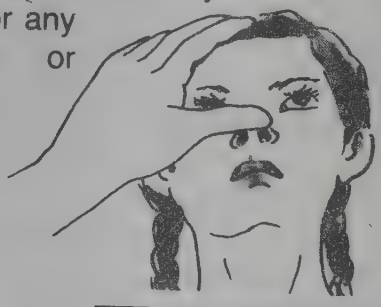


THE ANTERIOR FONTANELLE

A SUNKEN FONTANELLE IN A CHILD WHO IS LISTLESS OR A BULGING OR HARD FONTANELLE IN A CHILD WITH FEVER AND CONVULSIONS ARE SIGNS OF SERIOUS ILLNESS.

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
ii Note the amount, colour and texture of the hair	Hair covers the head evenly	Bald spots with or without itching	Baby left lying in one spot for a long time, or ringworm
	Dark, shiny hair which is springy in texture	Hair is lighter in colour than others in the family, is red dish, dry and brittle, and can be easily plucked out	Malnutrition (kwashiorkor)
iii Look for lice in the hair, crusts or scales on scalp	Hair is clean and scalp is clear	Presence of nits or lice on hair with itching	Lice infestation
		Crusts on scalp with itching	Ringworm
iv Feel for any bulges on head Rickets	Free of bulges	Bossing or bulges in forehead	Vitamin D deficiency (rickets)
v Note any oedema of face  Oedema	Free of oedema	Puffiness or oedema of face	Severe malnutrition or kidney disease
vi Test infant for ability to control movement of head	Head control by 3 months and full range of movements of head	Unable to hold head up without support at 3 months and unable to move head freely	Delayed milestone or birth injury

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
vii Look for stiffness of neck 	No stiffness	Unable to bend head forward for chin to touch chest	Meningitis
viii Feel for nodes on either side of neck from the angle of the jaw downwards	Nodes of lumps in neck cannot be felt 	Nodes or lumps can be felt and may be tender to touch	Infection of the ears or throat, or tuberculosis
EYES			
i Pull down lower eyelid and inspect conjunctiva	Pink conjunctiva	Whitish	Anaemia
		Reddish	Infection
		Yellow	Jaundice
ii Note any discharge or pustules on eyelids 	No discharge and eyelids are clean	Pus, sticking together of the eye lids, watering, pustules	Infection, allergy or common cold
iii Look at the white part of the eye for colour, dryness or absence of tears	Moist, smooth, clear whites of eyes with normal tears	Dry eyes, muddy colour with wrinkled surface and lack of tears	Mild vitamin A deficiency

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
cornea opaque soft and ulcerated 		Bitot's spots, cloudiness of cornea, ulceration	Severe vitamin A dificiency
iv Check for any oedema of eyelids	No oedema	Puffiness	Kidney disease
v Note general appearance of eyes	Clear, bright and not sunken	Dull, sunken and blank	Dehydration or severe malnutrition
vi Note whether eyes look straight	Eyes look straight (after 6 months of age)	Eyes turn in or out (after 6 months of age)	Squint
NOSE			
i Push up tip of nose with thumb and look for any obstruction or discharge 	Nostrils are clear and dry	Nasal discharge may be watery, thick mucus, pus, or blood tinged	Allergy, common cold or other types of respiratory infections, or foreign body in nose
ii Note any excessive movement of nostrils	Slight movement of nostrils with breathing	Moderate to marked flaring of nostrils with rapid shallow breathing	Respiratory infections especially pneumonia.

Acute respiratory infection (ARI).

Mild — Cough
Respiratory rate below 50 per minute

Moderate — Cough
Respiratory rate below 50 per minute

Severe — Cough
Indrawing of chest
Inability to drink

ALWAYS EXAMINE THE CHEST MOVEMENTS AND BREATHING OF A CHILD WITH FLARING OF THE NOSTRILS.

What to look for in each part of the body	Normal findings	Deviations from normal	Suspected health problem
MOUTH AND THROAT			
i Look for cracks or sores at the corners of the mouth	No cracks or sores at corners of mouth	Cracks and sores at corners of mouth	Vitamine B deficiency
ii Note the colour and texture of the tongue and lips	Tongue is moist, clean, pink, and rough in texture	Smooth red tongue	Vitamin B deficiency
		Dry coated tongue and dry cracked lips	Dehydration
iii Look for any discharge and signs and symptoms of inflammation	No discharge, redness or swelling	Soreness of throat and greyish covering on tonsils	Diphtheria
		Soreness, redness or pus on back of throat or tonsils	Tonsillitis
		Diphtheria causes a gray membrane on the tonsils and pharynx	
iv Look for white patches on tongue and mouth	No white patches	White, curd-like patches which will not come off when wiped with a swab stick	Thrush
v. Note condition of the gums	Firm, pink gums	Spongy, bleeding gums	Vitamin C deficiency
vi. Look for erupted teeth	Teeth eruption according to age (See Annexure 10.2)	Less teeth than usual for age	Delayed milestone

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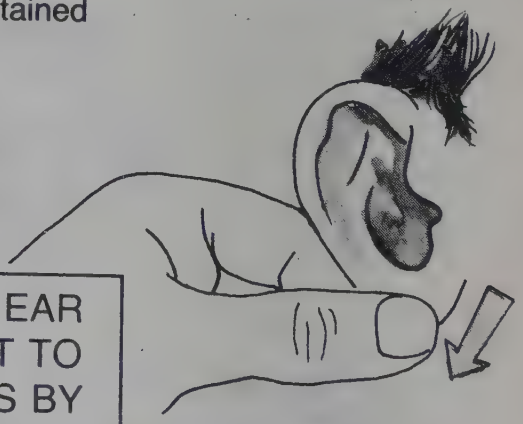
What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
vii Note presence of hare lip or cleft palate	No cleft in lip or in cleft palate	Cleft in lip on one or both sides and cleft in palate may be small or large	Hare lip or cleft palate

ALWAYS CHECK THE ROOF OF THE MOUTH FOR AN OPENING WHENEVER YOU COME ACROSS A CHILD WITH A SPLIT IN HIS LIP THESE DEFECTS OFTEN OCCUR TOGETHER.

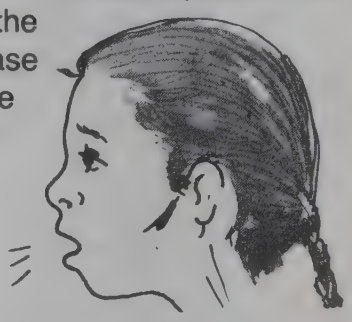
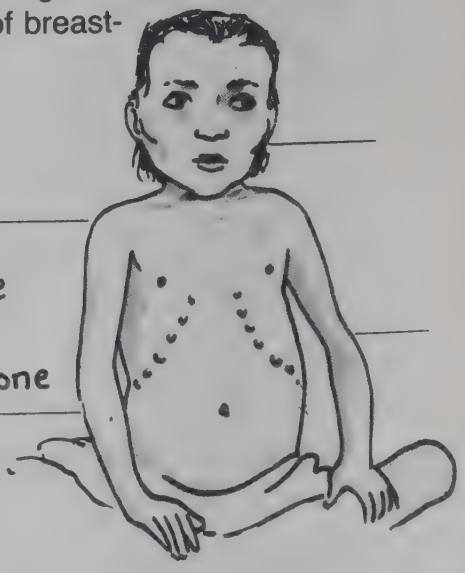
EARS

i Note the condition of the skin in the outer ear	Clear skin	Reddish skin which is scaly	Discharge from ear of long duration
ii Examine the inside of ear by pulling the lobe down and backward and look for any ear discharge or presence of a foreign body	Ear canal is clear	Discharge may be watery, pus or blood-stained	Infection or injury from foreign body



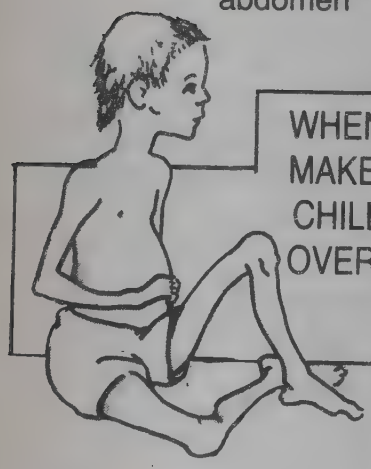
A CHILD WITH A PAINLFUL EAR WILL RESIST ANY ATTEMPT TO TOUCH IT. HE MAY DO THIS BY COVERING HIS EARS OR TURNING HIS HEAD AWAY.

iii Make a sharp noise or call to the child from the side and note his response	Child usually turns head towards the sound	Does not respond readily to sharp sounds or the voice	Loss of hearing

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
CHEST			
i. Note the movements of the chest during breathing in any child with a cough	Little movement of the chest muscles	Pulling in of the spaces between the ribs and at the base of the breast-bone with difficulty and noisy breathing	Broncho-pneumonia 
ii. Count the number of respirations and note the nature of respirations	Normal rate by age: (a) newborn 40 to 44 per minute (b) children 25 to 30 per minute	Less than 15 per minute More than 40 per minute in children over 6 months or more than 50 per minute in infants below 6 months	Reaction to drugs Respiratory infection
	Noiseless respiration	Grunting or noisy respiration	Obstruction of respiratory passages
iii. Feel for a series of bony swellings along either side of the breastbone	Attachment of the ribs to the breastbone smooth	A string of bead-like swellings along each side of breast-bone	Vitamin D deficiency (rickets) 

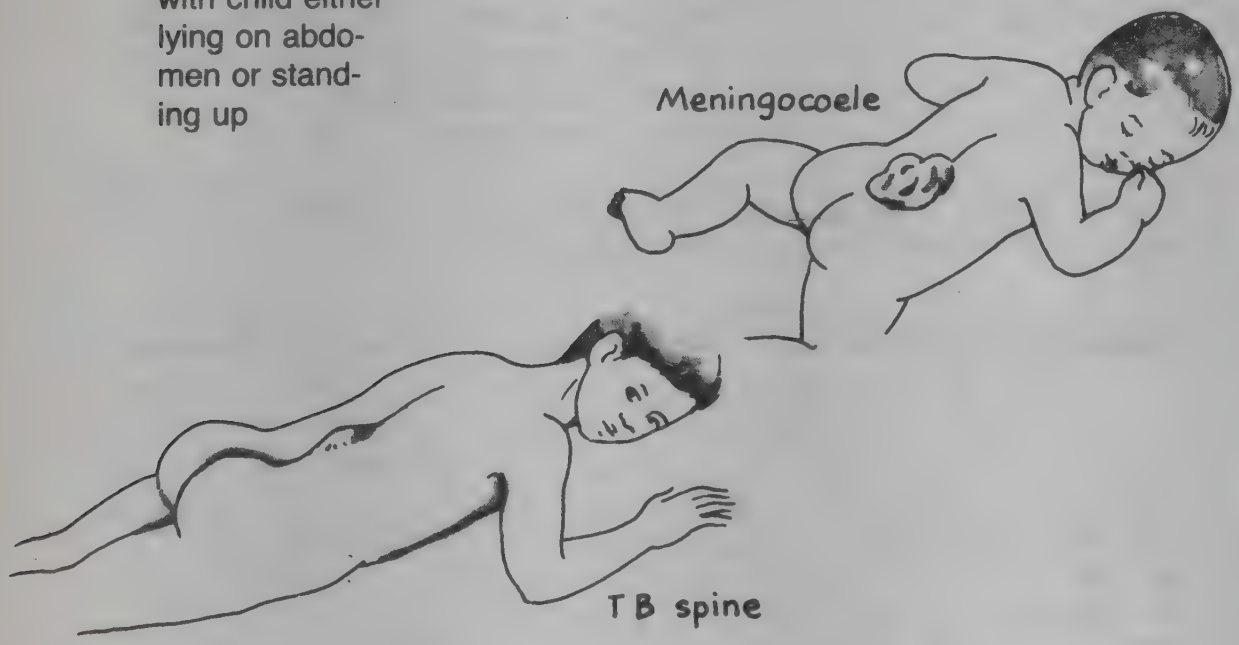
Rickety rosary - a row of bead-like swellings on either side of the breast bone

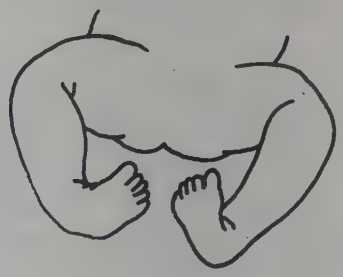
What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
ABDOMEN			
i. Observe the movements of abdominal wall	Abdominal muscles used for breathing in children under 6 years	Very limited movement of abdominal muscles in breathing	Abdominal infection or depressed respiration
	No noticeable movements of intestines	Waves of movement of intestines from left to right with forcible vomiting	Intestinal obstruction
ii. Note the size and shape of abdomen	Round and in proportion to body for age	Large for the size of body and age	Distension, worm infestation or weak muscles due to malnutrition



WHENEVER YOU FIND A CHILD WHO HAS A LARGE ABDOMEN, MAKE SURE THAT YOU WEIGH IT OR YOU CAN MEASURE THE CHILD'S MID-UPPER-ARM-CIRCUMFERENCE IF THE CHILD IS OVER ONE YEAR OLD. IF THE ARM CHIRCUMFERENCE IS NORMAL, CHECK FOR WORMS.

What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
GENITALS			
i. Examine for any swelling, redness and discharge from vulva	Clean with no swelling or redness	Vaginal discharge with or without redness or swelling	Vaginal infection
ii. Examine scrotal sac for presence of testes	Testes present in scrotum	One or both testes absent from scrotum	Undescended testes
iii. Note whether foreskin can be retracted over penis	Foreskin can easily be retracted over penis	Foreskin is tight over the penis and cannot easily be retracted	Phimosis (tight foreskin)
SPINE			
i. Observe alignment of spine with child either lying on abdomen or standing up	Straight spine	Deformity in spine	Tuberculosis of the spine
ii. Look for any swelling along the spine	None	Swelling along the spine	Meningocoele



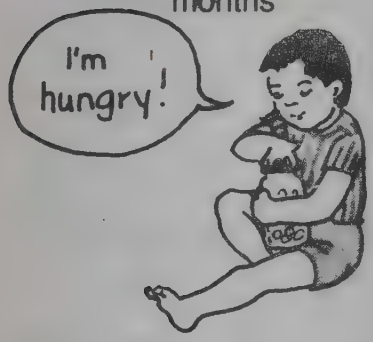
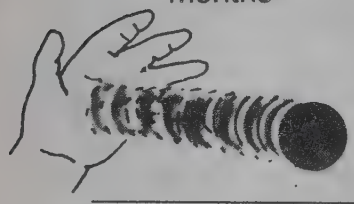
What to look for in each part of the body	*Normal findings*	*Deviations from normal*	*Suspected health problem*
BUTTOCKS AND ANUS			
i. Inspect anus for worms evidence of scratching	Clean anus and no scratch marks	Worms from anus and soreness of surrounding skir	Worm infestation
LIMBS			
i. Note the size of upper arm and measure mid-upper-arm-circumference in children 1 to 5 years	Mid-upper-arm-circumference above 13.5 cm	Mid-upper-arm-circumference less than 13.5 cm 	Malnutrition
ii. Test for oedema at the ankles	None	Oedema paresent at ankles; may also be accompanied by difficult respiration	Malnutrition, kidney disease or heart disease
iii. Look for deformity of feet	Feet and legs are normal	Feet or legs may be twisted	Clubfoot
iv. Observe gait	Normal gait	Abnormal gait	Nervous diseases, congenital defects, or nutritional disorders
v. Look for paralysis, wasting or deformity or limb	None	Present	Poliomyelitis

ANNEXURE 10.2

Important milestones in growth and development for the first five years

Age	*Major milestones*
(1) Newborn	i. Birth weight between 2.7 and 2.9 Kg ii. Length at birth 48 to 50 cm
(2) 1 to 3 month	i. Weight gain of 200 gm per week or 800 gm per month ii. Can lift head when lying on abdomen *iii Can roll from side to back
(3) 4 to 6 month	i. weight gain of 150 gm per week or 600 gm per month ii. Follows moving objects with eyes iii. Holds back straight when pulled to the sitting position iv. Two lower teeth (incisors) may appear *v. Can turn over from abdomen to back
(4) 7 to 9 months	i. Weight gain of 100 gm per week or 400 gm per month *ii. Rolls over easily from abdomen to back iii. Can sit without support *iv. May begin to crawl
(5) 10 to 12 months	i. Weight gain of 50 to 75 gm per week or 200 to 300 gm per month ii. Height increases by 25 cm by end of one year iii. Has six to eight teeth iv. Can stand without support v. May walk alone *vi. Can pick up articles between thumb and fingers

*These items are important in teaching mothers about preventing accidents in children.

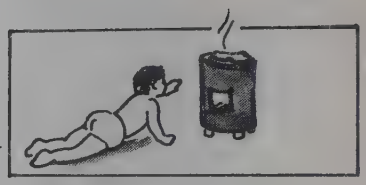
	Age	Major milestones
(6)	13 to 15 months	i. Weight gain of 200 gm per month ii. Has ten to twelve teeth iii. Jabbers incesssantly, but can say few words clearly *iv. Walk about exploring surroundings *v. Can lift lids off containers
(7)	16 to 18 months	i. Weight gain of 200 gm per month ii. Has twelve teeth iii. Can say two to three words together iv. Can run without falling v. Can take off some clothes vi. Can drink out of a cup
 (8)	19 to 24 months	i. Weight gain of 200 gm per month ii. Height increases by 12 cm during second year iii. Has 16 teeth iv. Can speak three word sentences and knows about 300 words v. Can state need to pass urine or stool vi. Can feed self with supervision vii. Can walk and run steadily *viii. Can turn knobs and unscrew lids *ix. Can poke or probe with fingers
 (9)	25 to 30 months	i. Weight gain of 170 gm per month ii. Has 20 teeth iii. Can say own name iv. Can throw objects v. Can jump, walk on tiptoe and stand on one foot
(10)	31 to 36 months	i. Weight gain of 170 gm per month ii. Height increases by 9 cm during third year iii. Can speak short sentences easily iv. Can sing a song v. Asks many questions vi. Can help dress self

*These items are important in teaching mothers about preventing accidents in children.

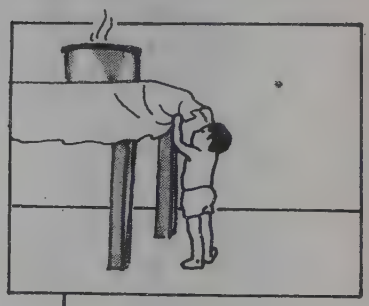
Age	Major milestones
(11) 37 to 48 months	i. Weight gain of 170 gm per month ii. Height increases by 7 cm during fourth year *iii. May wander away from the house *iv. Has no concept of height or depth
(12) 49 to 60 months	i. Weight gain of 170 gm per month ii. Height increaes by 6 cm during fifth year iii. Talks almost constantly and uses longer sentences than before iv. Likes to play and be with other children v. Likes to imitate vi. Usually obedient and helpful with small tasks

ANNEXURE 10.3

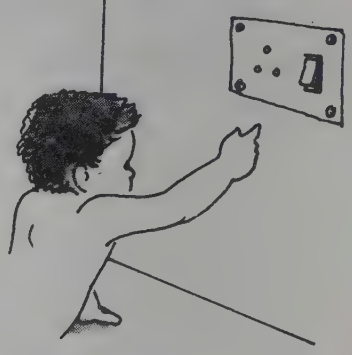
Prevention of home accidents in children*



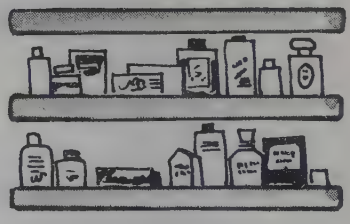
1. Never leave a child alone in the house.
2. Never leave a child near a fire, stove or heater.



3. Do not let a child play with matches.
4. Do not leave a child near a hot iron.
5. Do not leave a vessel containing hot liquid near the edge of a table or on a table covered with cloth with the edges hanging down.
6. Never carry a baby while drinking hot fluids or while smoking or cooking.



7. Never leave a child alone near a bucket or other large vessel containing water.
8. Keep all electric wires safe and in good condition.
9. Check all plug points and do not leave electrical sockets open.
10. Unplug electrical appliances when not in use.
11. Do not leave a child alone in the kitchen.



12. Lock up all drugs. kerosene, phenyle and insecticides or keep them out of reach of childern.
13. Do not leave any medicines lying about.

14. Destroy all discarded medicines.
15. Always read a label before administering any medicine
16. Do not keep medicine in a bottle without a label.

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* Ref: Shanti Ghosh, A Dictionary of Baby and Child Care, Vikas, 1979.

17. Keep all small objects such as beads, nuts, coins, buttons, etc. away from the baby's reach.

18. Do not leave sharp objects, e.g. scissors, knives or needles, lying about.

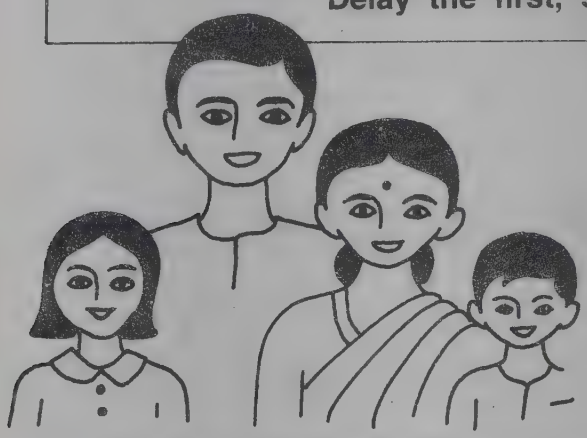
19. Do not let a child run about with anything sticking out of its mouth.

20 Do not let a children put plastic bags on their heads or string around their necks.

21. Do not let a child poke its head between bars.

22. Wherever possible use a barrier for stairs and fireplaces.

Delay the first, space the second, don't have the third.



The goals fo the family planning programme are as follows:

1. To raise the age of marrige for women to over 20 years.
2. To encourage all couple to accept the idea of a small family, i.e. preferably two children, irrespective of the sex of the children.
3. To spread information to all eligible couples about the methods available for spacing or limiting their families.
4. To provide contraceptives to all eligible couples.
5. To arrange for clinical and surgical services.
6. To follow up all couples accepting a method of family planning.
7. To enhance child survival by immunization of infants and mothers and by treatment of diarrhoea with ORS.
8. To promote the status of women as equal partners in decision making in the family and to increase male participation in family planning.
9. To reach all young people between 11 and 19 years with population education and family life education.

Spacing pregnancies can protect the health of the mother and her child because:

- She is less likely to have serious complications of pregnancy.
- She is less likely to produce a weak, low birth weight infant.
- She will have more time and energy to care for the infant and for her other children.
- The interval between pregnancies will help her body to recover from the burden of child-bearing.

Limiting population growth in the country can make it possible for more people to have:

- better job opportunities
- higher family income
- better facilities for schooling

- better health care
- better housing
- more and better food.

Better food for all
when the family is small

1 All couples where the woman is between 15 and 44 years of age, are eligible for family planning services.

2. Inform couples about the benefits of a planned family.
3. Inform couples about the available methods of spacing and limitation and motivate them to use a contraceptive method.
4. Remove doubts, fears and misconceptions about various contraceptive methods.
5. Distribute nirodh (condoms) to users.
6. Refer all couples who wish to undergo sterilization to the PHC or sterilization camp.
7. Follow up those who accept a contraceptive method.
8. Refer to the HWF those women who need her assistance.
9. Identify, train and involve leaders in each village in family planning activities.
10. Utilize satisfied family planning acceptors and other interested individuals in educational activities for family planning.
11. Keep the necessary records and submit the required reports.

Preparing, maintaining and using the Eligible Couple & Child Register (ECCR)

In order to know which couples in each village should be approached for family planning services, you must make a list of all eligible couples in the area. You and the HWF can do this by regular house-to-house visits. You will keep one copy of the Eligible Couple List with you. This list is useful only if it is maintained properly and the information is kept up to date. You and the HWF can meet and do this at regular intervals.

In some village, the HG, trained dai, or chowkidar may be able to supply information about families who have recently come to live in the village.

Eligible couples, i.e. where the wife is between 15 and 44 years of age, would include the following:

* Newly married couples
* Couples where the wife is having her first baby
* Couples with one child
* Couples with two or more children
* Infertile couples
* Couples using temporary methods of contraception
* Couples where the wife has undergone tubal ligation
* Couples where the husband had undergone vasectomy.

You and the HWF should organize your work as a team to meet programme tragets. Do this in the following ways.

- Classify the couples into high, medium and low priority groups. For instance, those couples with two or more children are high priority couples; newly married couples, those where the wife is pregnant for the first time, and those with only one child are medium priority couples. those using temporary methods and infertile couples are low priority couples.
- Review from time to time the number of couples who are using, who are no longer using, or who have used family planning methods..
- Find out how many couples must be reached for planning intensive campaigns.
- Exchange information when a spouse of the opposite sex needs to be approached for family planning.
- Share information about approaches which you have found useful in motivating acceptors.
- Take each other's help in motivating a couple if one or the other partner does not want to use a contraceptive method.
- Clear the doubts and misconceptions raised by the couples.
- Plan and carry out family planning education programmes to reach various groups in the community.

Contraceptive methods

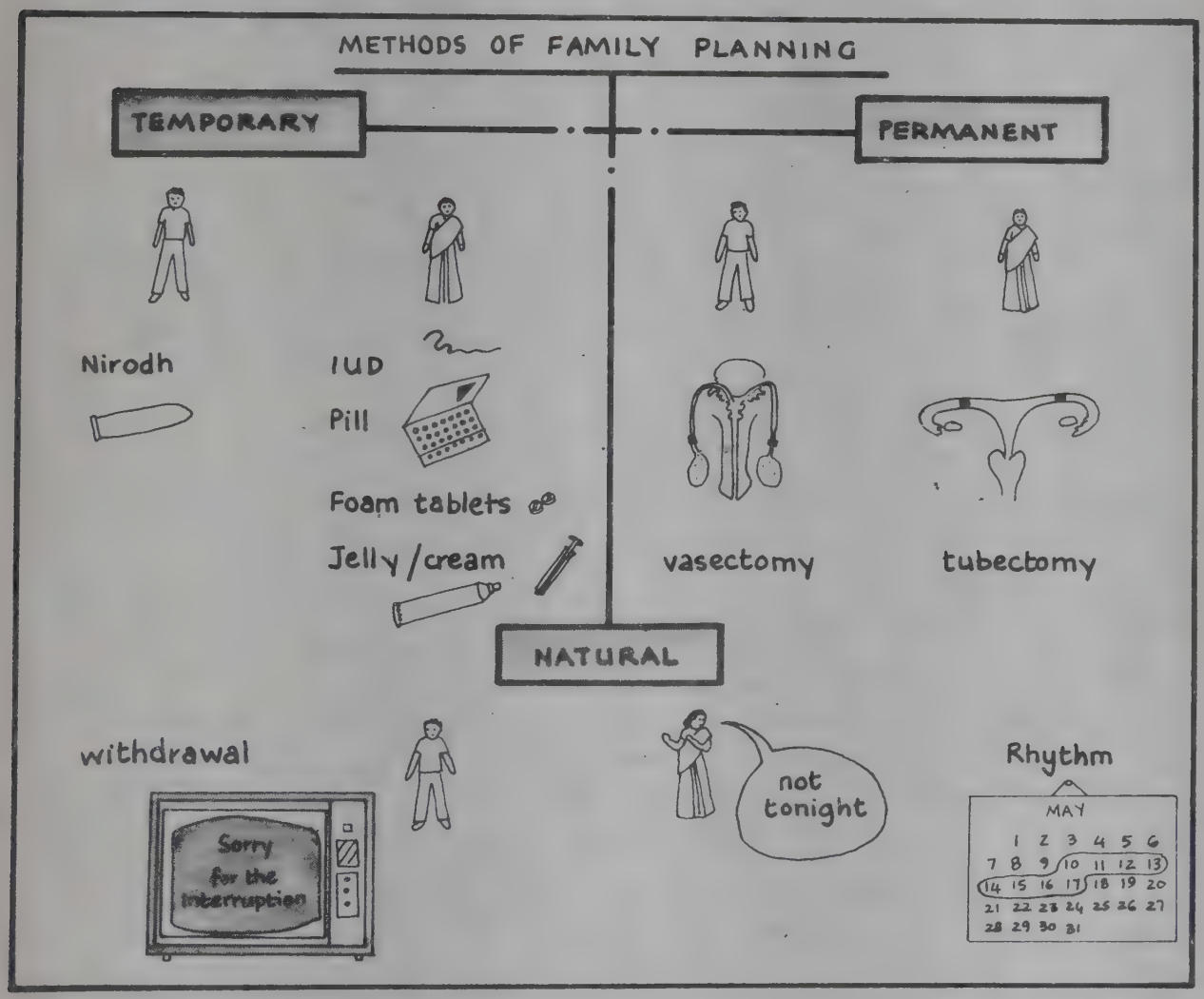
When you talk to couples about family planning, they will have many questions to ask about the different methods. You must know:

- What are the various methods of family spacing and limitation—how they are used, their advantages, and their drawbacks.
- How to select couples for a particular method of family spacing or limitation and whether any special precautions need to be taken for each of these methods.
- What side-effects are likely to occur with the the use of each methods, what action is to be taken if these do occur, and when the case should be referred to the PHC.

Remember that your own approach to family planning will greatly influence the couples in their attitude to family planning, their choice of method and their use of the method.

The contraceptive which are available under the family planning programme are as follows:

1. **Temporary methods:** These can be discontinued easily at any time by the couple when they want a child.
2. **Permanent methods:** These are surgical procedures carried out on either the man or woman, after which the individual cannot have any more children.
3. **'Natural' methods:** These can be advised for spacing when the couple are not willing to use any artificial method.



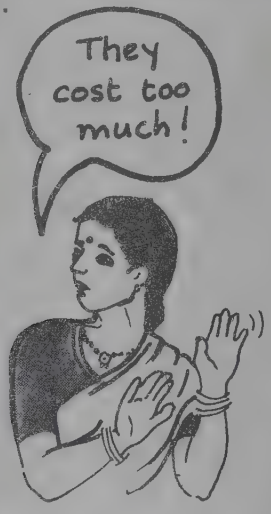
Remember, conception can be prevented if:

- The man's sperm cannot reach the ovum
- The ovum is not released each month by the woman's ovary
- The fertilized ovum cannot attach itself to the wall of the uterus.

Selection of couples for contraceptive methods

When you advice a couple about the most suitable method of contraception for them to use, you must consider the following:

- The age of the couple.
- The health of the couple.
- The number of pregnancies the woman has had.
- The number of living children.
- The health of the children.
- The sex of the children.
- The age of the youngest child.
- The availability of the services—personnel, supplies and follow-up.
- Whether the couple wish to space their children or limit the size of their family.
- The preference of the couple for a particular method.
  The facilities available in the house, e.g. privacy, water supply, arrangements for storage of contraceptives.
- The cost involved in purchasing contraceptives or in travel to the place of free supply.



Specific family situations, e.g. either partner refuses to use any method, irresponsibility of either partner, long absence or chronic illness of either partner.

The presence of medical contraindications to the use of a particular method, especially the IUD or the pill. This can be determined after history taking and medical examination of the woman.

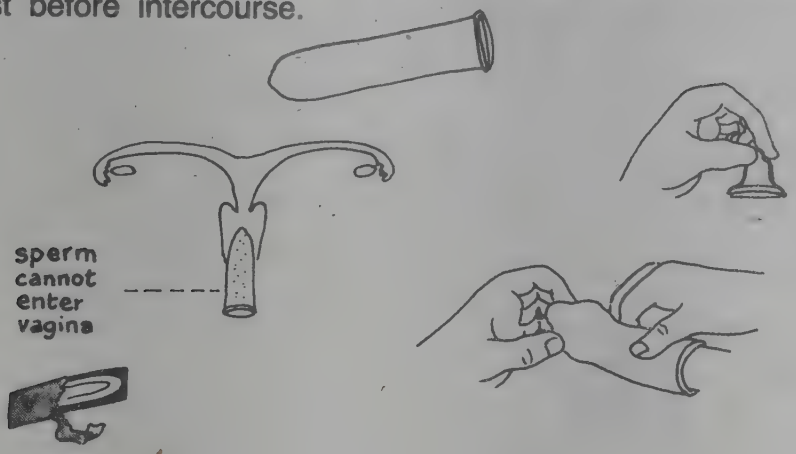
Given below are some of the questions which people will ask about contraceptive methods.

Contraceptive methods for men

NIRODH (condom)

What is nirodh?

Nirodh or the condom is a thin rubber sheath which is used to cover the penis just before intercourse.



* **How does it act?**

It prevents sperms from entering the vagina.

* **How is it used?**

It is used as follows:

- Tear the foil wrapper and take out nirodh.
- Hold the end portion of nirodh between the thumb and forefinger to expel air.
- Unroll the nirodh carefully over the full length of the erect male organ.
- While withdrawing after intercourse, hold the nirodh firmly with the fingers on the male organ to avoid spilling of semen.
- Use a fresh nirodh each time.

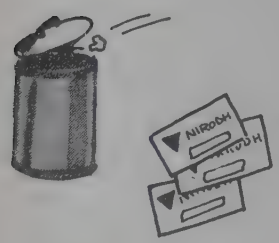
After use do to not throw the nirodh about indiscriminately. Wrap it in paper and throw it with the household trash.

* **Where is it available?**

It is available free of charge from the Family Welfare field workers and at the PHCs, Subcentres. It is also easily available from the local shops,

* **How effective is this method?**

If used regularly, nirodh is a safe and reliable method of preventing pregnancy.It is more effective if it is used with a contraceptive jelly or cream. However, if not properly used, it may tear or slip off and pregnancy may occur.



* **What are the other advantages of the methods?**

- It is easy and convenient to use.
- There is no need to see a doctor before using nirodh.
- There are no after effects.
- It protects against the spread of sexually transmitted diseases.

What are its limitations?

Some couples may feel decrease in their sexual pleasure when they use nirodh.

Note: Give the couple a sufficient number of nirodh and follow them up to ensure regular supply.

WITHDRAWAL (coitus interrupts)

* **What is the withdrawal method?**

In this method the penis is withdrawn from the vagina just before ejaculation. In this way, the semen is not released in the vagina.

* **What are the advantages of this method?**

- No devices are necessary.
- No cost is involved.
- No prior medical examination is required.

* **Is it a reliable method of contraception?**

It is not a reliable method because sometimes a drop of semen may be released before actual ejaculation, and sperms can find their way up into the cervix.

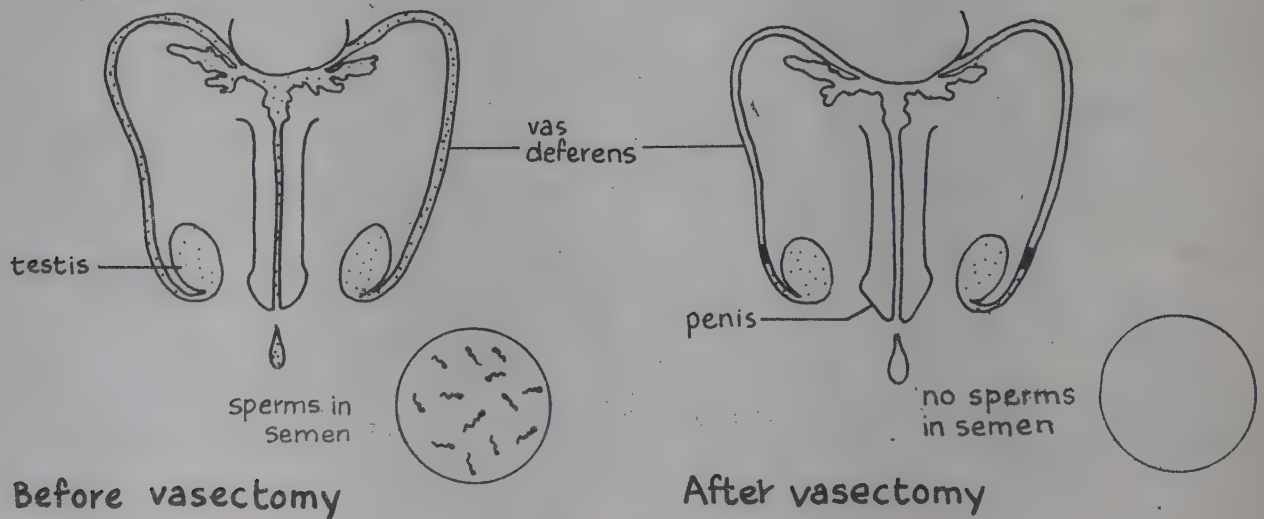
* **Is it a satisfactory method to use?**

Many couples find this method satisfactory. However, some couples do not like the method because it interrupts the sexual act.

VASECTOMY

* **What is vasectomy**

This is an operation done on men. It consists in cutting and tying the two tubes (vas deferens) that carry sperms from the testes to the penis.



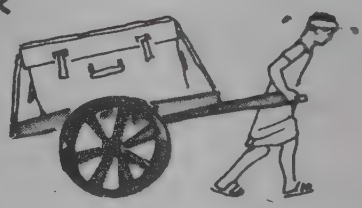
* **How does it prevent conception?**
After the operation no sperms can reach the vagina.

* **Will I have any pain during the operation?**
The doctor will give you an injection so that you will not feel any pain during the operation.

* **Will I have to stay in hospital for the operation?**
The operation is very simple and takes only about 10 to 15 minutes. You will not have to stay in the hospital. You can go home within a short while after the operation.

* **Will I have to rest in bed after the operation?**
No, bed rest is not required. You can carry out your usual activities But avoid doing any heavy manual work or cycling for a week after the operation.

Avoid cycling and heavy manual work for one week



* **How soon after operation can I take a bath?**
Do not take a bath for atleast 24 hours after the operation. Be careful not to wet the operation site during your bath. You can use a plastic sheet as a langot or T-bandage to cover the area during your bath.

* **Is there any special care which I should take of the operation site?**
- Keep the dressing in place.
- Keep the operation site clean and dry.
- Wear a T-bandage or scrotal support (langot) for 15 days.

* **When will the stitches be removed?**
The stitches will be removed on the 5th to 7th day after the operation.

* **Will I have any discomfort after the operation?**
It is not likely that you will have any problems after the operation. If, however, you do have any pain or swelling at the site of operation, or if there is fever, let me know immediately or see the doctor at the PHC.

* **Will I lose my strength after this operation?**

No, the operation will not reduce your capacity for physical or mental work. work.

* **Will I be able to have a normal ejaculation after the operation?**

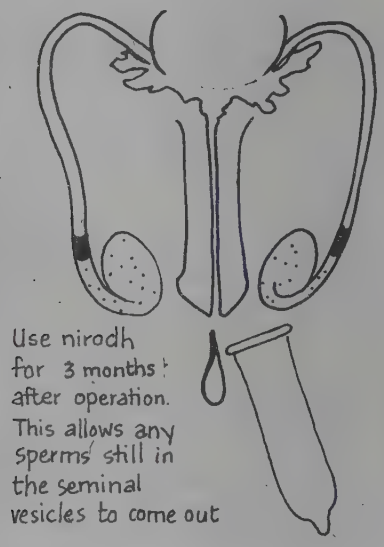
Yes, you will have normal ejaculation, only there will not be any sperms in the ejaculate.

* **Will I lose my sexual desire or potency after vasectomy?**

Vasectomy will not in any way inferfere with sexual desire or the ability to have sexual relations. In this operation the testes are not touched or removed. Therefore, it is **not** the same as castration.

* **How soon after the operation can I have sexual intercourse?**

You can resume sexual intercourse any time after the stitches have been removed provided there is no discomfort at the operation site. However, **you must use nirodh for three months following the operation.**



* **Why is it necessary to use nirodh after the operation?**

Because a few sperms are likely to be present in the seminal vesicles, i.e. beyond the site of the operation. If you do not use nirodh your wife can become pregnant. It is always best to have your semen tested to ensure that there are no sperms present before you have unprotected intercourse.

* **If I want to have children later on, will it be possible?**

A special operation can be done in which the cut ends of the tubes (vas deferens) are rejoined, so that you can have children. However, this is not always successful. It is, therefore, important that you and your wife should be very sure that you do not want to have any more children before you undergo vasectomy.

The criteria for selecting men for vasectomy are as follows:

- The wife should be living.
- The man should not be below 25 years nor over 50 years old.
- The age of the wife should be between 20 and 45 years.
- The couple should have two or more living children.

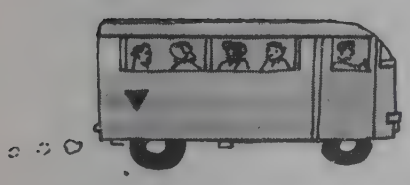
- In cases where there are only two living children, the age to the youngest child should be two years or more. The children should not be suffering from any serious disease and they should have received all the necessary immunizations.
- The couple should not want any more children and should understand what is done in sterilization.
- Neither spouse should have undergone sterilization previously.

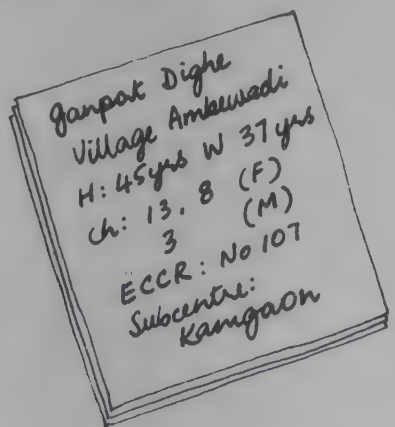
If you have any doubts as to whether the man is suitable for vasectomy, discuss the matter with your supervisor.

If a **vasectomy camp** is organized in your PHC area, you can help in several ways:

Before the camp:

- Inform the men from your area who are willing for vasectomy about the date, timings and place of the camp. Find out what arrangements for transport have been made and inform the men accordingly.
- Give each man a chit to say that his name is in the ECCR of your Subcentre. Enter details regarding name, address, age of husband and wife and number, sex and ages of children.
- Ask the man to shave the pubic area, take a bath and wear clean clothes on the morning of the operation.
- Explain to the man what will be done and reassure him.





During the camp:

You can assist in:

- registration of cases;
- sterilization of instruments;
- giving prophylactic tetanus toxoid to the cases for vasectomy,
- distributing nirodh to vasectomized cases.

After the camp:

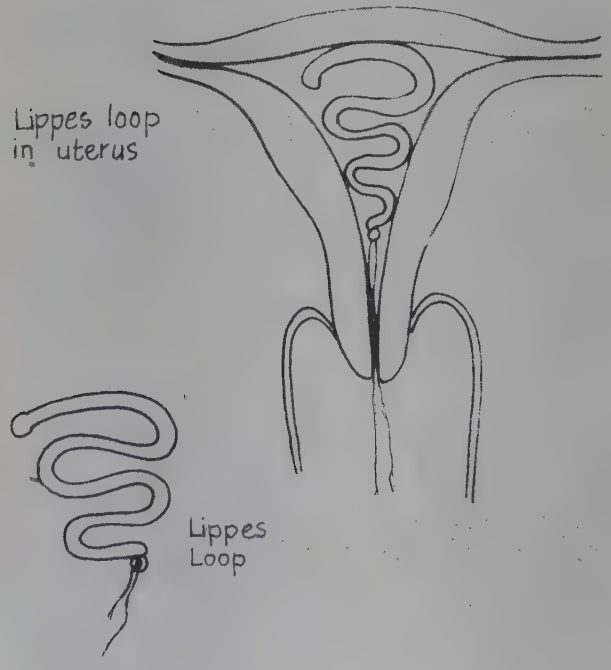
- Visit the vasectomy case at home
  * 24 hours after the operation;
  * on the 3rd to 4th day after the operation.
  - If the man has pain of fever, give him acetyl salicylic acid tablets or paracetamol tablets.
- If there are any complications, e.g. swelling, severe pain or high fever, give the patient sulphadimidine tablets. If necessary, refer him to the PHC.
- Ensure that the man goes to the PHC for removal of stitches on the 5th to 7th day after the operation.

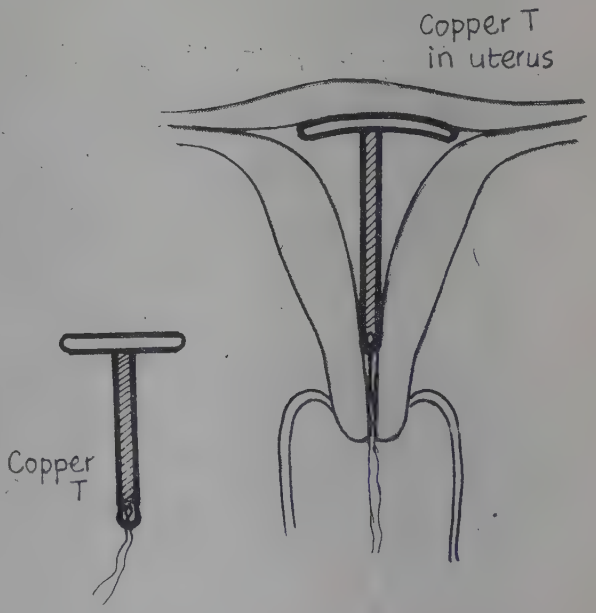
Contraceptive methods for women

INTRA-UTERINE DEVICE (IUD)

* **What is the IUD?**

This is a device made of polyethylene (Lippes loop) or of polyethylene and copper (Copper T). It is inserted into the uterus and as long as it remains in the uterus it prevents conception.





* **Do I have to put it in each time I have sexual relations?**
No, it is a one-time method, i.e. once it is inserted by the doctor or Health Assistant Female, you do not have to do anything more.

* **When should I have the IUD inserted?**
The best time to have the IUD inserted is just after your menstrual period. However it can be put in at any other time of the menstrual cycle. It can also be inserted 3 to 4 days after delivery or immediately after abortion provided there is no infection.

* **will I have to stay in hospital to have the IUD inserted?**
No, you can have the IUD inserted by the doctor or HAF at the PHC or Subcentre clinic. Before putting it in, the doctor will examine you to make sure that you are suitable for using the IUD. After insertion you can go home.

* **Is it painful to have the IUD inserted?**

there may be slight discomfort during insertion. This can be reduced if you relax and breathe deeply during insertion. This may also have some pain for a few days after insertion. You will be given some tablets for this and it will soon pass.

* **How soon after insertion of the IUD can I have sexual relations?**
You can have sexual relations any time after insertion without using any other contraceptive.

* **Will it hurt my husband during sexual intercourse?**
No. He will not be able to feel it.

* **How reliable is this method?**
It is quite a reliable method for spacing children. However, in a few cases, pregnancy may occur with the IUD in place.

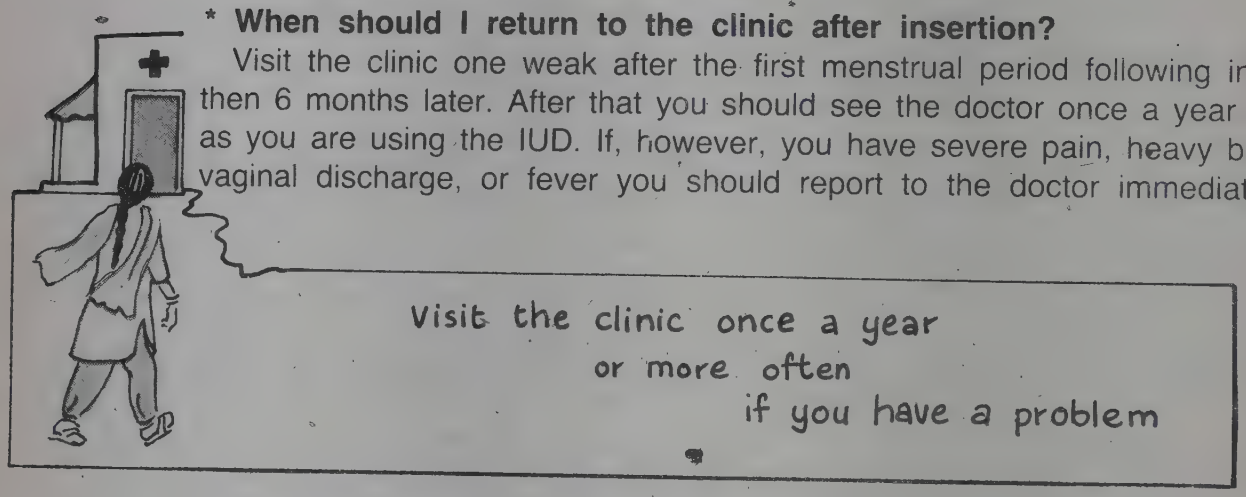
* **If pregnancy occurs with the IUD in place, will it harm the baby?**
No.

* **Can I carry out my normal activities after insertion of the IUD?**
Yes.

* **Will I have normal menstrual periods after insertion of the IUD?**
There may be slight bleeding for a few days after insertion and your first few menstrual periods may be heavier than usual. After that the periods will usually be regular and normal.

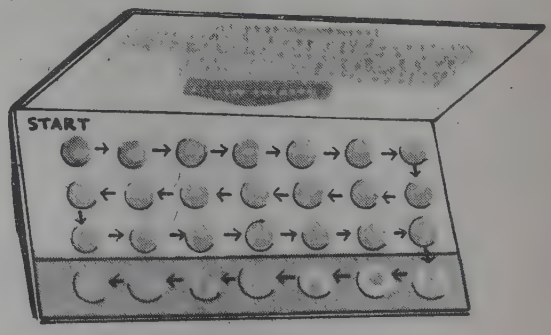
* **Can the IUD come out of its own accord?**
If it is put in properly it usually stays in the uterus. However, sometimes the IUD may come out. If this happens you should inform the Health Worker Female and have another IUD inserted or use some other contraceptive.

* **If I use the IUD will I be unable to have any more children?**
If you wish to have another child, you can have the IUD removed. After that you become pregnant.



* **When should I return to the clinic after insertion?**
Visit the clinic one weak after the first menstrual period following insertion, then 6 months later. After that you should see the doctor once a year as long as you are using the IUD. If, however, you have severe pain, heavy bleeding, vaginal discharge, or fever you should report to the doctor immediately.

* **For how long can I use the IUD?**
You can use it for as long as you want. But it should ber changed every three years.

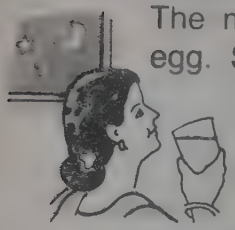


ORAL CONTRACEPTIVES ('The pill')

* **What is the pill?**
Oral contraceptives (also known as 'the pill') are tablets that are taken daily by a woman to prevent conception. The tablets are usually packed as shown in the figure. Each packet contains 28 pills—21 of them contain the contraceptive and 7 contain only iron.

* **Note:** These instructions are for the use of the 28-tablets pack manufactured by the Indian Drugs and Pharmaceuticals Ltd. for the Ministry of Health & family welfare. The instructions are issued with each pack of oral contraceptives.

* **How does the pill work?**



The medicine contained in the pill prevents the ovaries from releasing the egg. Since there is no egg there can be no fertilization.

* **How are the pills to be taken?**
You must take the pills regularly if they are to be effective. Take the pill every day at a fixed time, preferably after dinner at bedtime. If possible, drink a glass of milk with the pill.

* **When should I start taking the first course of pills?**
Start the first course of pills on the 5th day of your menstrual cycle (counting the first day of bleeding as day number one). Take the pill from the packet marked 'start' (white tablet). On subsequent days take one pill every day from the packets in the order indicated by arrows on the pack, till all the pills are finished.

* **When should I start taking the next course of pills?**
Start the new pack of pills on the every next day after finishing the last pack. Start with the pills from the pocket marked 'start'.

* **Can I have sexual relations immediatelty after I start taking the pill?**
In the first month after starting the pill you are not yet protected against pregnancy. If you have intercourse during this month, you or your husband must use some other method of contraception. After that, if you continue to take the pill regularly, you are fully protected.

* **Suppose I forget to take a pill at night. What should I do?**
If you forget to take a pill, you should take it as soon as you remember next morning, and take the next day's pill at the usual time.

* **Can anyone take the pill?**
No, all women cannot take the pill. If a women is breastfeeding a baby of six months or less, she should not take the pill. If a women has certain diseases, e.g. jaundice, diabetes, or high blood pressure, she cannot take the pill. Before you are given the pill, the Health Assistant Female, Health Worker Female or female Health Guide will take a careful history. If you are not found suitable, you will not be given the pill. You must be examined by a doctor within three months of starting the pill.

* **How effective is the pill?**
This is one of the most effective methods if it is used regularly. However, if you miss your pills you can become pregnant. **Always ensure that you have sufficient pills with you.** Visit the clinic regularly for supplies.

Take your pills regularly or you may become pregnant

* **What is the advantage of the pill over other temporary methods?**
  If you are using the pill regularly, you can have sexual relations at any time without using any device. The pill is useful in those women who have heavy or painful menstrual as it reduces the menstrual flow and prevents pain.

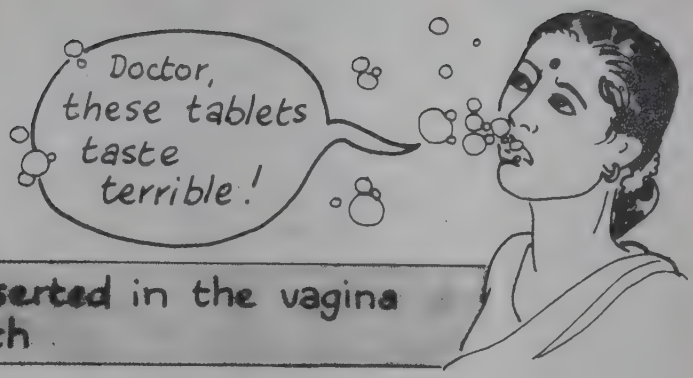
* **Are there any ill effects of the pill?**
  Some women may have side effects like nausea, headache, scanty periods bleeding between periods, or increase in weight. These symptoms usually disappear after the first few months of use. However, if you are worried about any of these or other symptoms, you should return to the clinic.

* **If I take the pill, can I have a child later on?**
  Yes, if you want another child, you can stop taking the pill and you can soon become pregnant.

FOAM TABLETS

* **What are foam tablets and how do they work?**
  These are vaginal tablets which dissolve on contact with miosture and develop a thick foam. this foam destroys the sperms in the vagina during intercourse.

* **How are these tablets to be used?**
  - Look at the tablets. They should not be discoloured. They should not tend to crumble.
  - just before inserting the tablet in the vagina, moisten it with water. Discard it if it does not foam.
  - Insert the tablet high up into the vagina behind the cervix (mouth of the uterus).
  - Insert the tablet just before intercourse. If more than 15 minutes pass from the time of inserting the tablet, use a second tablet.
  - Do not douche after intercourse.



Foam tablets must be inserted in the vagina and NOT taken by mouth

* **How should I store the tablets?**
The tablets get spoilt in moisture and lose their ability to foam. therefore, keep them in a dry place. Always store them in a place where children cannot get at them.

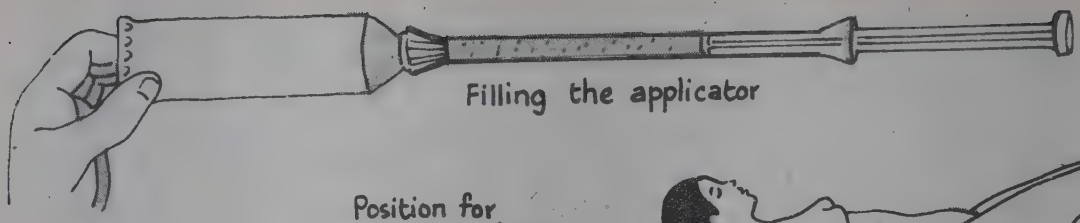
* **Is this a reliable method of contraception?**
It is not a very effective contraceptive method, but it is very simple and you do not need to have a medical examination before using the method.

* **Can the tablets cause any side effects?**
In some cases the wife or husband may complain of burning sensation in the sex organs.

CREAMS AND JELLIES

* **How do creams and jellies act as contraceptives?**
There are various kinds of creams and jellies which are used as contraceptives. These are spermicidal, i.e., they are able to destory the sperms when they come in contact with them. As a result the sperms cannot find their way up into the cervix and cannot reach and fertilize the ovum.

* **How are creams and jellies used?**
They may be used alone or with nirodh. The cream or jelly is used as follows:
- Screw the applicator on to the nozzle of the tube containing the jelly or cream.
- Press the tube so that the applicator is filled with jelly or cream.
- Unscrew the applicator.
- Just prior to intercourse lie on your back and insert the applicator into the vagina behind the cervix.
- Inject the jelly or cream by pressing the plunger while gradually withdrawing the applicator.
- Do not douche after use.
- Wash and dry the applicator. Store the jelly or cream out of the reach of children.



Filling the applicator

Position for insertion of jelly

* **What are the advantages of this method?**
  It is a very simple method and does not require any prior medical examination. It can be used by a newly married woman who wants to postpone having her first child.

***Is it an effective method of contraception?**
When used alone it is not as effective as when it is used along with another contraceptive, e. g. nirodh.

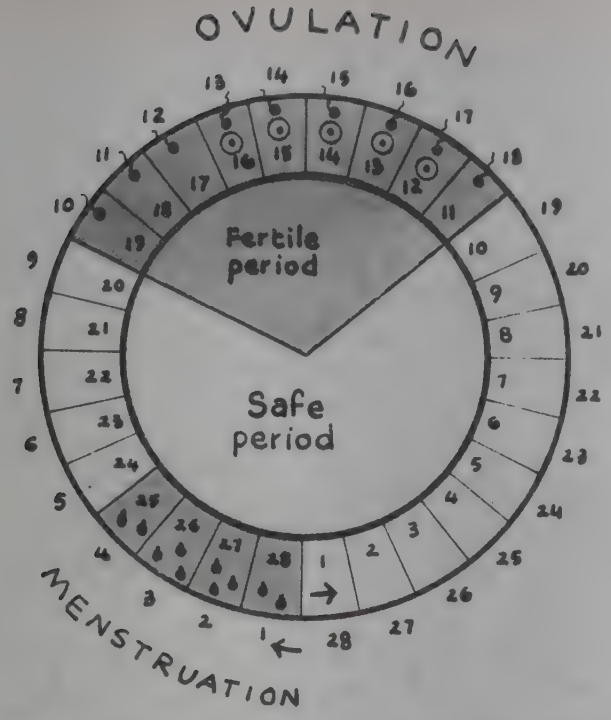
* **Will I have any discomfort with the method?**
  Usually this method does not cause any discomfort. However, in a few cases, the man or woman may have local irritation or soreness of the genital organs with the use of the jelly or cream.

RHYTHM METHOD (safe period)

* **what is the rhythm method?**
  The rhythm (also known as the safe period method) is based on the fact that the egg is shed about 12 to 16 days before the onset of menstruation. these are the fertile or unsafe days of the menstrual cycle in which a woman is most likely to become pregnant. Hence if a couple abstain from intercourse at that time or use some other contraceptive on those days, they can avoid pregnancy.

* **How can I know exactly which are the unsafe days of my cycle?**
  you must first keep a record of the length of your menstrual cycle. the shortest cycle minus 18 days gives the first day of your fertile period. The longest cycle minus 10 days gives the last day of your fertile period. For example, if your menstrual cycle varies from 26 to 31 days, the fertile period during which you should not have intercourse would be from the 8th day to the 21st day of the menstrual cycle, counting day one as the first day of the menstrual period. the figure shows the fertile period and the safe period in a 20-day cycle.

* **Does this mean that I can have sexual relations only on the safe days of my cycle?**
  On the safe days of your cycle you can have sexual relations **without** using any other contraceptive. If you want to have relations during the fertile period, you must use some other method.



* **Is this a reliable method of preventing pregnancy?**
  Since it is based on the **expected** day of ovulation, there is a risk of pregnancy occurring if ovulation takes place at some other time of the cycle. There are methods for being more certain about the date of ovulation, such as taking the temperature, or checking the quality of the cervical discharge. But these make the method more cumbersome.

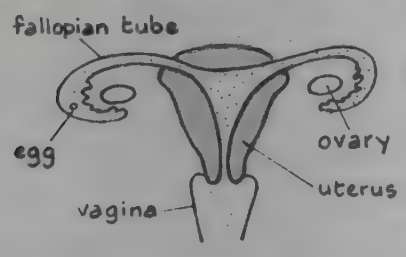
TUBAL LIGATION (tubectomy)

* **What is meant by tubectomy?**

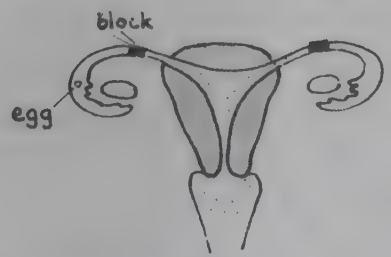
Tubectomy or tubal ligation is an operation on the women in which the two fallopian tubes are tied with or without cutting. This prevents the sperms from meeting and fertilizing the ovum so that pregnancy cannot take place.

* **Can I have the operation done at any time?**

If you are not pregnant, the operation can be done at any time convenient to you. It should preferably be done after your menstrual period. If you are pregnant, the operation can be done immediately after delivery or abortion. If you are to undergo some other operation such as removal of the appendix or repair of a prolapse, tubal ligation can be carried out at the same time.



Sperms can reach egg
→ fertilization

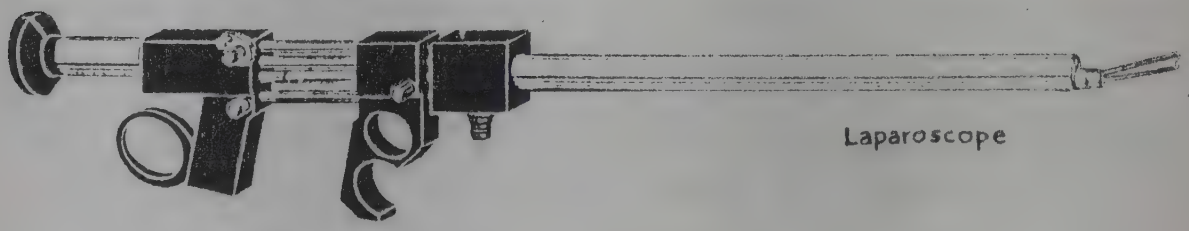


Sperms cannot reach egg
→ no fertilization

* **Will I have to stay in hospital for the operation?**
With newer methods such as the mini-lap operation or laparoscopy can go home 4 to 6 hours after the operation if you are found fit for discharge, or you may have to stay in the hospital for 24 to 48 hours.

* **What is the mini-lap operation?**
Under local anaesthesia a very small cut (3 to 4cm) is made in the lower abdominal wall. Through this opening each fallopian tube is drawn out, tied and cut.

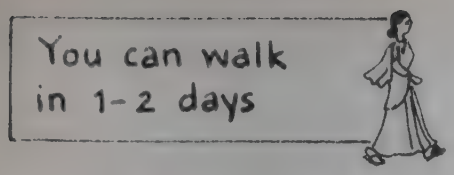
* **What is laparoscopy?**
The laparoscope is an instrument made of three pieces: an outer hollow tube; a trocar for making a small puncture in the abdominal wall; and an optical part with a built–in light through which the doctor can look into the abdomen. Under local anaesthesia the doctor inserts the laparoscope into the abdomen. Gas is then introduced into the abdomen. The doctor then looks through the laparoscope, locates the fallopian tubes and applies a clamping ring (falope ring) around each tube.

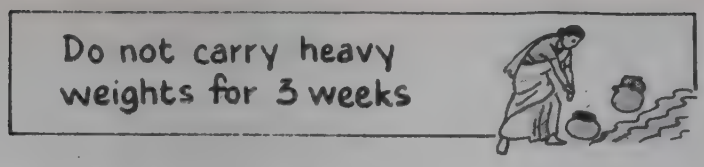

Laparoscope

* **Will I be conscious during the operation?**
The type of anaesthesia given will vary from hospital to hospital. You may be given local anaesthesia so that you will not feel the pain but will remain conscious during the operation. Or you may be given general anaesthesia (either inhalation or injection) so that you will not be conscious during the operation.

* **Will I have any pain or discomfort during or after the operation?**
There will be no pain or discomfort during the operation. For the first few days after the operation there will be some pain at the site of operation and some discomfort as with any other operation, but this will soon pass

* **how soon after the operation can I take a bath?**
Once the stitches are removed you can take a bath





* **For how long after the operation must I take rest?**
  You can walk about within one or two days after the operation, and after about 10 days you can do light work in the house. However, you should not carry heavy loads or do heavy manual work for at least three weeks after the operation.

* **Will I stop menstruating after tubal ligation?**
  In this operation the ovaries and uterus are not affected and hence menstruation will continue to take place each month.

* **Will I become fat after the operation?**
  Tubal ligation does not directly result in weight gain. However, some women gain weight after this operation because they are free from the fear of pregnancy and also because they may be able to afford to eat more and relax more than before. It is important, therefore, to keep active and to do regular abdominal exercises after the operation.

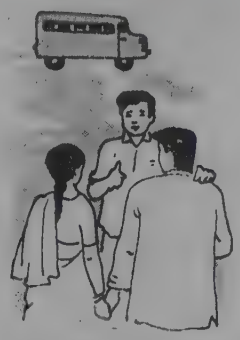
* **When can I resume sexual relations?**
  Although you will be incapable of conceiving immediately after the operation, sexual intercourse would be painful in the first few weeks after the operation. You should, therefore, abstain from sexual intercourse for about 4 weeks following tubal ligation.

* **Can the operation be reversed if later I want to have a child?**
  The operation can be reversed but this is a difficult operation and is not always successful. You and your husband should, therefore, decide to undergo sterilization only when both of you are quite sure that you do not want any more children.

the criteria for selecting women for tubal ligation are as follows:

- The husband should be living.
- The women should not be below 20 years or above 45 years and she should still be having menstrual periods.
- The man should not be below 25 years nor over 50 years old.
- The couple should have two or more living children.
- in cases where there are only two living children, the age of the youngest child should be two years or more. The children should not have any serious disease and they should have recieved all the necessary immunizations.
- The couple should not want any more children and should understand what is done in sterilization.
- Niether spouse should have undergone sterilization previously.

If a **tubectomy camp** is organised in your PHC area. you can help the HWF in the following ways:



Before the camp:

- Inform the eligible couples in your area about the date, timings and place of the camp. Find out what arrangements for transport have been made and inform the couples accordingly.
- Give each couple a chit giving their name, address, age of the husband and wife, and number, sex and ages of children. Mention that the couple is registered in the ECCR of your Subcentre.
- Explain to the couple what will be done and reassure them.

During the camp:

you can assist in:
- registration of cases;
- giving prophylactic tetanus toxoid to the cases for tubectomy.

After the camp:

- Advise the husband to take his wife to the PHC on the 5th to 7th day for removal of stitches.

- Visit the couple at home on the 2nd, 4th and 7th to 10th day after the operation and find out if all is well with the women.
- If she has pain or fever, give her acetyl salicylic acid tablets or paracetamol tablets.
- If she has swelling or purulent discharge from the operation site, or if their is severe pain or high fever, give her sulphadimidine tablets and refer her to the PHC. Inform the HWF.

Motivating eligible couples for family planning

You must be patient and inderstanding in motivating people to accept family planning methods.

During your home visits proceed as follows:

- Enquire about the health of the members of the household. Help them if they need medical care. This will give them confidence in you.
- Find out if any family planning method is being used.
- Find out what they already know so that new, additional or correct information can be given
- Stress the health benefits of family planning for the husband, the wife and the children.

- Use simple language. Use pictures, diagrams, or actual devices, e.g. nirodh or IUD, to explain what you are saying.
- Be tactful when attempting to correct wrong information or rumours.
- Avoid exaggerating the effectiveness of any contraceptive method. Inaccurate information may lead to disappointment and create resentment.
- Listen sympathetically to what people have to say about family planning. Discuss with them and try to remove any antagonism towards the programme.

— Respect people's religious beliefs when giving advice about family planning.

— You may have to visit a couple several times before they accept a family planning method.

Inform the HAM and MO PHC about any adverse comment or rumours in the community which may affect the smooth running of the family planning programme.

Records and reports

You and the HWF will record information relating to family planning in your diaries and in the necessary registers. These registers give the up-to-date position about the eligible couples in the area. They indicate who has been sterilized and which women are using the IUD. They show how many oral pills, jellies, or nirodh have been dispensed. They also indicate whether the method is used regularly, why a couple have stopped using a method, and whether there are any side effects or complications.

Form these records you and the HWF can prepare your monthly report.

Medical Termination of pregnancy (MTP)

Many women living in rural areas still die needlessly from the results of illegal abortions. These are carried out by untrained persons and often under insanitary conditions. It is no longer necessary to go to quacks because in India the Medical Termination of Pregnancy Act (1971) has made abortions done by doctors, under certain conditions, legal. Information about this Act must be widely spread in the villages so that women need not use unsafe, illegal means in order to end an unwanted pregnancy.

There are five conditions identified under the MTP Act in which a pregnancy can be terminated. These are as follows:

1. **Medical:** where the continuation of the pregnancy might endanger the mother's life or cause grave injury to her physical or mental health.
2. **Eugenic:** where there is substantial risk of the child being born with serious handicaps due to physical or mental abnormalities.
3. **Humanitarian:** where pregnancy is the result of rape.
4. **Socio-economic:** where actual or reasonably foreseeable environments (whether social or economic) could lead to risk of injury to the health of the mother.
5. **Failure of contraceptive devices:** the anguish caused by an unwanted pregnancy resulting from a failure of any contraceptive method can be presumed to cause grave injury to the mental health of the mother.

Where can abortions be done?

They can be done at all government hospitals and at such other places (not being government institutions) which have the necessary equipment and facilities for termination under safe and hygienic conditions. These places must be approved for the purpose by the government.

Who can perform the abortions?

Not all doctors are authorized to perform the operation. The doctors must have the necessary qualifications or experience provided under the Rules. Under the Act, others are not allowed to perform abortions.

What should you know about MTP?

—MTP or abortion refers to the various medical procedures that can be done to empty the pregnant uterus of the products of conception

—Any woman with an unwanted pregnancy can have MTP on request on medical, eugenic, humanitarian of socio-economic grounds, or because of failure of contraceptive methods.

—The operation for terminating a pregnancy is simple and without much risk if it is done within the first 10 weeks of pregnancy by a qualified doctor in a government approved institution.

- There is no charge for having an MTP performed in the general ward of a Government institution.
- The woman does not have to stay in hospital and can usually go home after the procedure when it is performed within the first 10 weeks of pregnancy.
- Serious complications from the operation are rare, but sometimes there may be bleeding, pain, fever, or menstrual irregularity. Such problems can be treated by the doctor at the PHC.
- If a woman who is more than 10 weeks pregnant wants her pregnancy terminated, she may need an abdominal operation. For this she will have to stay in hospital.
- If a woman is more than 10 weeks but less than 20 weeks pregnant, and if she wants MTP, she will have to be examined and the operation approved by two qualified doctors.
- The earlier the abortion is done, the simpler it is and the less the risks for the woman.
- After undergoing MTP, the woman or her husband should be encouraged to use a contraceptive method or undergo sterilization if eligible. This will avoid the need for repeated MTP.

You should make every effort to inform the community about the services available for MTP. In this way needless deaths or disability from illegal abortions can be reduced.

Things to do

1. Go through your Eligible Couple List. Mark all the high priority couples with a star (*) in pencil. Mark all the medium priority couples with a circle (○) in pencil. Mark all couples where the husband or wife has been sterilized with a triangle (▽) in red ink. Along with the HWF plan a family planning educational and service programme to cover all high priority couples in your area. Make a list of all those whose help you will need in this programme. Mention against each person what help he or she can give.

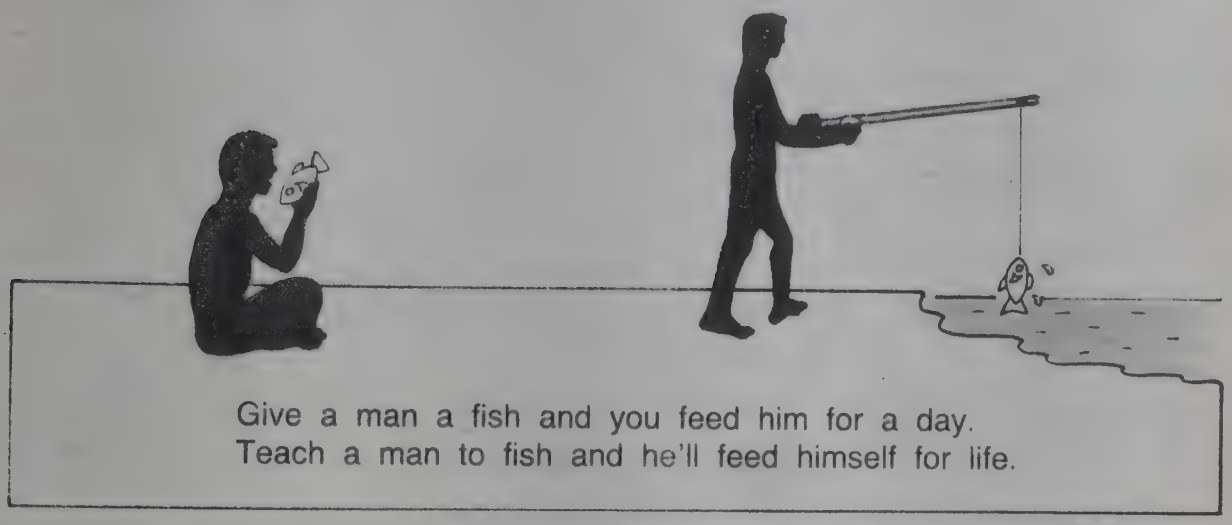
2. With the help of the HWF collect or prepare aids for teaching people about family planning, e.g. actual contraceptives, flip charts'*
flash cards*, posters, flannelgraphs*, folders, puppets*, etc.

3. Take the help of the HWF, HAM, HAF, BEE and MO PHC in planning and carrying out a population and family life education programme for young people (15–19 years) in your area. Some of the topics which can be discussed are:

— Reproductive system in the male and female
— Age at marriage
— Women as full partners and decision makers in marriage
— Population growth and population control
— Ideal family size
— Methods of family planning

4. Find out which is the nearest place to your Subcentre where MTP is done. Visit the MTP clinic and collect as much information as you can about MTP services. Inform the community under your care about these services.

*Note: See Appendix .1, 'Preparing Visual Aids' on page of this Manual.



Give a man a fish and you feed him for a day.
Teach a man to fish and he'll feed himself for life.

Nutrition is the study of foods and their effects on the body. Good nutrition means that the body is getting the food it needs and is able to make use of it.

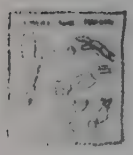
Many young children in rural areas are underweight, frequently ill due to infections or worm infestations, and retarded in their physical and mental growth. This is because their diet does not meet their body requirements. It is also because of insanitary or incorrect food practices.

Lack of food can cause:

— Weak infants of low birth weight
— Insufficient production of breast milk
— Retarded physical and mental growth
— Higher susceptibility to illness
— Malnutrition and death, especially among infants and pre-school children.

Your responsibilities in the delivery of nutrition services

— Identify early signs of malnutrition in infants and children under five years of age.



— Dispense vitamin A solution and iron and folic acid tablets to the eligible groups.

— Refer infants and pre-school children to the Anganwadi, PHC or hospital if their nutritional problem is beyond your competence.

— Advise individual families and groups in the community as to how to select, store and prepare foods properly.

— Encourage the community to have kitchen gardens.

— Educate the community about the need for a balanced diet. Tell them what food is needed by pregnant women, nursing mothers, infants and pre-school children.

— Advise the community about simple ways of improving the family diet.

— Advise the community about personal hygiene and food hygiene.

— Visit the homes to find out the effectiveness of treatment, referral, and health teaching activities.

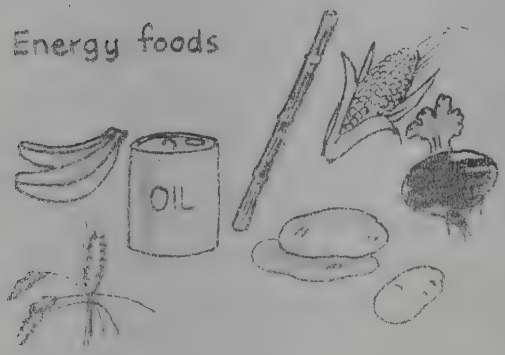
Principles of nutrition

The principles of nutrition are as follows:

— Food is necessary for providing energy, building the body, and protecting the body from disease.

— An adequate daily fluid intake is necessary for maintaining the fluid balance in the body.

— A balanced diet includes foods from all three food groups;



* adequate amounts of ENERGY FOODS — carbohydrates and fats
* adequate amounts of BODY-BUILDING FOODS — proteins
* adequate amounts of PROTECTIVE FOODS — vitamins and minerals.

— The age, activity, state of health and rate of growth of a person decide the amount and kinds of nutrients that are required by the body for healthy growth and for the maintenance of good health.

Functions and values of nutrients in food

Nutrients are substances with special functions which are found in food. They are necessary for normal growth and development of the body, repair of the body tissues, and protection of the body against disease. There are six kinds viz. carbohydrates, fats, proteins, vitamins, minerals and water.

Some foods are made up of only one type of nutrient whereas others may include more than one nutrient. For example, cooking oil consists entirely of fat, whereas milk contains protein, fat, minerals and vitamins. It is very useful to know which foods contain a large amount of a given nutrient so that these can be selected to meet the requirements of the body.

Each of the six nutrients that are found in food has its own special functions to perform in the body. These functions are as follows:

Carbohydrates and fats provide the body with energy or fuel to carry out its various activities.

Proteins are necessary for growth. They help in repairing worn-out body cells and in the formation of blood and antibodies which are needed for building up resistance to infection.

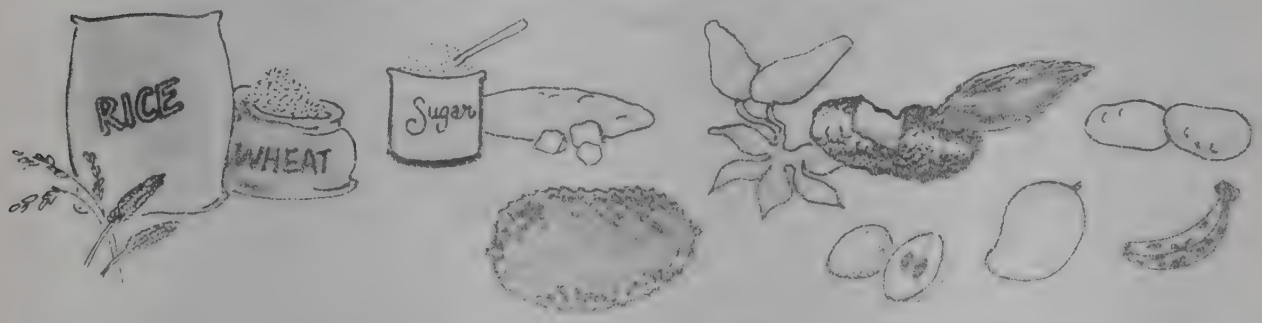
Vitamins and minerals are necessary for the development of the blood cells. They help to maintain good vision and strong teeth and bones. They help to promote normal growth.

Water makes up more than half the weight of the body. It is essential for the proper functioning of the body cells and for maintaining the fluid balance of the body. Children under three years of age must drink plenty of water, especially when they suffer from diarrhoea.

Carbohydrates or energy foods

Carbohydrates provide the body with energy. The amount required by a person depends on the kind of activity he carries out. A man who is breaking stones all day will need more energy food than a man who sits in his shop. Children, especially pre-school children, are often not fed frequently enough during the day. When this happens, they become malnourished, thin and less active. They tire easily and do not grow well.

Foods rich in carbohydrates include the following:



- cereals such as rice, wheat, millet, suji and maize
- sugar and jaggery
- starchy vegetables such as potato, sweet potato, yam and tapioca
- fruit such as banana, jackfruit, chikku and mango.

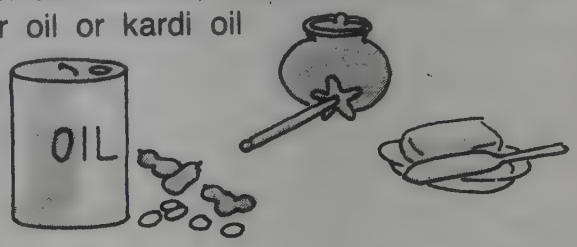
Fats or concentrated-energy foods

Foods that contain fats are needed by the body because they supply concentrated energy, prevent dry, scaly skin, help in the absorption of vitamin D, and improve the flavour of food.

Foods rich in fats include the following:

Vegetable sources:—groundnuts
- cooking oils such as coconut, mustard, sesame (till), palm oil, sunflower oil or kardi oil

Animal sources:
- butter and ghee
- cheese
- fatty meat.



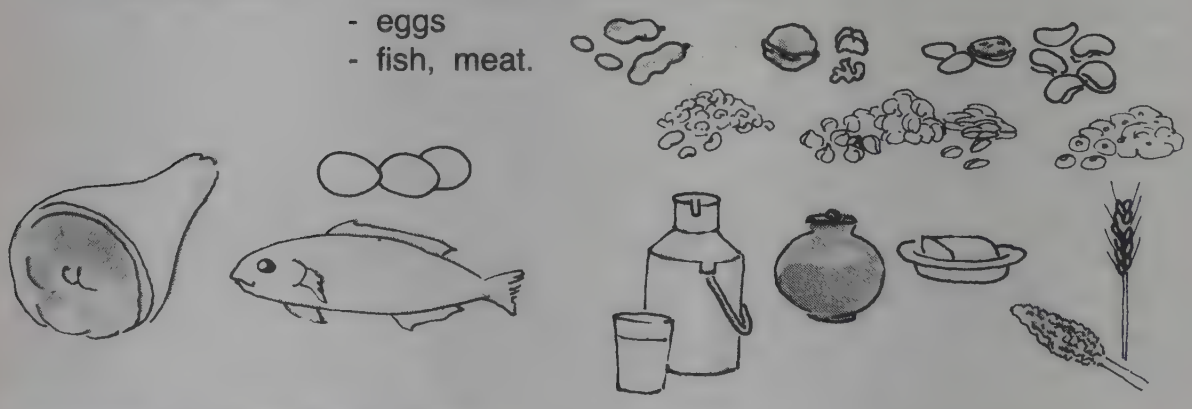
Proteins or body-building foods

Foods that contain proteins are needed by the body daily for repairing cells and forming new cells. Adequate amounts of this nutrient are especially important in the diets of pregnant and nursing women, infants and young children because they have extra needs. Those who are sick also need extra protein.

Food rich in proteins include the following:

Vegetable sources:
- pulses or dals, e.g. chana, urad, masur, moong, arhar
- legumes, e.g. soyabean, rajmah, dry peas
- bajra, jowar, ragi, wheat
- nuts, e.g. groundnut, cashew nut

Animal sources:
- Milk, curds, cheese, panir
- eggs
- fish, meat.



Vitamins or protective foods

Vitamins are substances which are found in small quantities in several kinds of food. They are needed by the body for normal growth and maintenance of cells.

There are several kinds of vitamins. Some are needed for good vision and healthy eyes (Vitamin A); others for blood formation (vitamin B); others for

increasing resistance to infections and early healing of wounds (vitamin C); and others are needed for strong teeth and bones (vitamin D).

Vitamin A: Many young children become blind because their diet is lacking in vitamin A. Mothers must be told which foods contain this important substance. They must be encouraged to include these foods in the daily family diet and to grow them in their kitchen gardens.

To prevent blindness due to lack of vitmain A in their diet, children in our country from one to five years are being given vitamin A solution twice a year.

Foods which are rich sources of vitamin A include the following:

Vegetable sources:
- dark green leafy vegetables like palak, cholai and methi
- yellow fruit like mango and papaya and yellow vegetables like pumpkin and carrot

Animal sources:
- eggs and liver
- milk and curds.

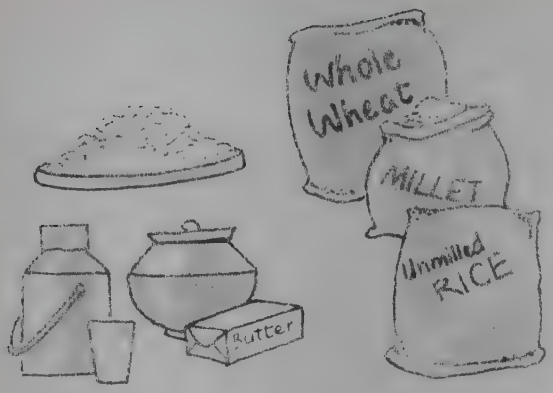
Vitman B: Vitamin B consists of several components. These have various special functions, e.g.

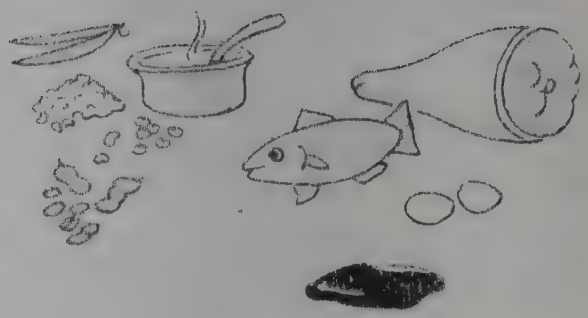
- They assist in the breakdown and absorption of food.
- They are necessary for keeping the skin and mucus membranes healthy.
- They are necessary for the proper development and functioning of the nervous system.
- They are necessary for the formation of the blood cells.

In India the diet is often deficient in vitamin B. This is especially so among those who eat highly milled rice and little else.

Foods rich in vitamin B include the following:

Vegetable sources: Parboiled rice, handpounded rice and unmilled rice
- whole wheat (atta or dalia)
- millet
- groundnuts
- pulses (dals)
- legumes (beans)

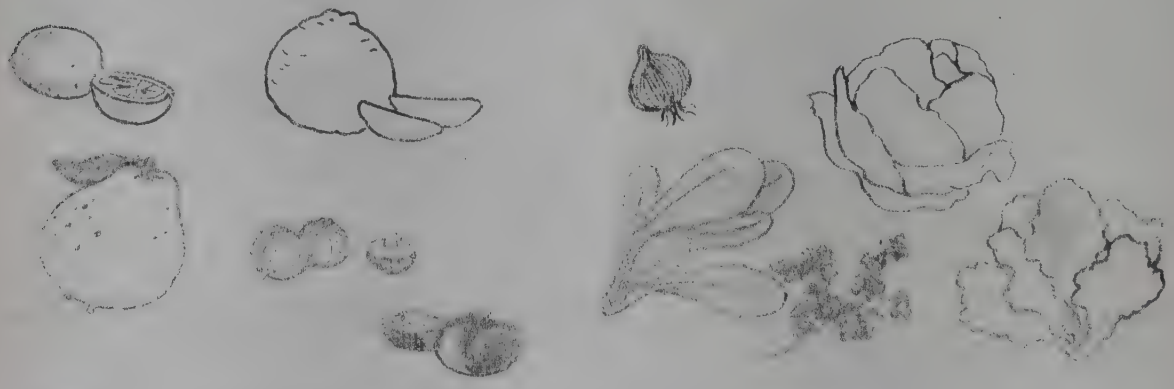




Animal sources:
- milk and milk products
- eggs
- meat, liver and fish.

Vitamin C: This vitamin is necessary to keep the body tissues intact. It helps in repair of the tissues. It also helps to protect the body against infection. It is found in vegetables and fruit but not in animal sources.

Vitamin C is very easily destroyed and hence foods containing this vitamin should not be exposed to air and heat. Foods which contain this vitamin should be eaten raw or cooked very lightly.



Foods rich in vitamin C include the following:
- citrus fruits, such as orange, lime and lemon
- guava, amla and tomato
- all green leafy vegetables such as drumstick leaves, [illegible] pasi, vellakeerai and knol-khol leaves
- sprouted gram.

Vitamin D: Vitamin D is necessary for the absorption and utilization of calcium and phosphorus. Lack of this vitamin causes unhealthy teeth and skeletal deformities. These are seen in rickets in children.

Sources of vitamin D are as follows:
- fish liver oils have a very high content of vitamin D
- butter, ghee, groundnut oil and eggs also contain vitamin D

- exposure to sunlight is the cheapest way to obtain this vitamin.

Minerals or protective foods

Minerals are needed by the body for the formation of blood and the development of strong teeth and bones. They are also required for certain body processes such as blood clotting. There are a number of minerals that are required in minute quantities by the body. However, calcium and iron are two of the important minerals which are needed by everyone, especially by pregnant and nursing women and growing children. Iodine is another mineral which is essential for normal growth and development. Deficiency of this mineral in the daily diet is the cause of goitre.

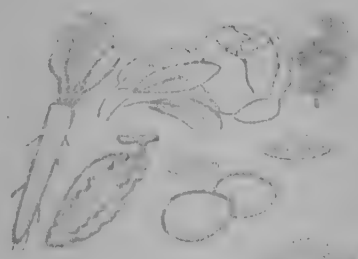
Foods rich in calcium include the following:

Vegetable sources: - ragi
- green leafy vegetables

Animal sources: - milk, cheese
- sun-dried fish.

Foods rich in iron include the following:

Vegetable sources: - bajra and ragi
- green leafy vegetables
- bitter gourd (karela)
- jaggery

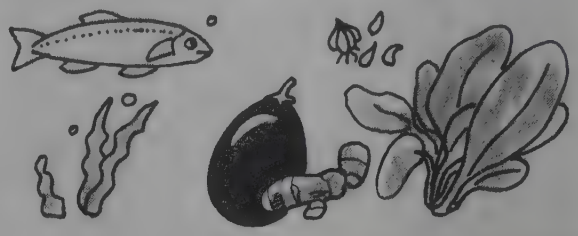


Animal sources: - red meat, liver and eggs.

Foods rich in iodine include the following:

Vegetable sources: - spinach, brinjal, garlic and ginger
- vegetables grown near the sea, seaweed

Animal sources: - fish.



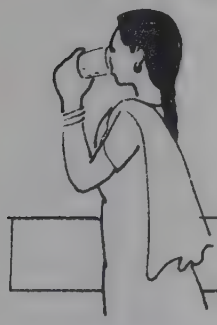
Advise those who live in areas where goitre is prevalent to use iodized salt instead of ordinary salt. This is salt to which potassium iodide is added-1 mg potassium iodide to 10 g common salt.

Water or fluids

An adequate daily fluid intake is important for healthy functioning of the body especially in hot weather. Fluids in the form of drinking water, milk, juices, other beverages like tea or coffee, and fruits and vegetables which are juicy can be used to supply the daily needs of the body.

Vomiting, diarrhoea and high fever result in excessive loss of fluids from the body. This can cause dehydration (drying up of body fluids). This is a serious condition, especially among infants, young children and elderly persons.

Drinking water can carry many kinds of germs and cause a number of diseases if it is obtained from unsafe sources. Therefore, families should be taught that all water given to babies should be made safe by boiling it for them and keeping it in clean, covered containers (See Chapter 6, Safe Water).



The body needs plenty of fluids to remain healthy

A balanced diet

A balanced diet is one which is made up of foods that contain all the necessary nutrients in the required amounts and proportions to maintain health. A balanced diet is necessary for good health for all members in the family. It should consist of foods from each of the three main food groups. This will

You must eat fish and eggs to get vitamin A
Panditji says it is a sin to eat fish
If we don't sell all our eggs we won't even have grain to eat

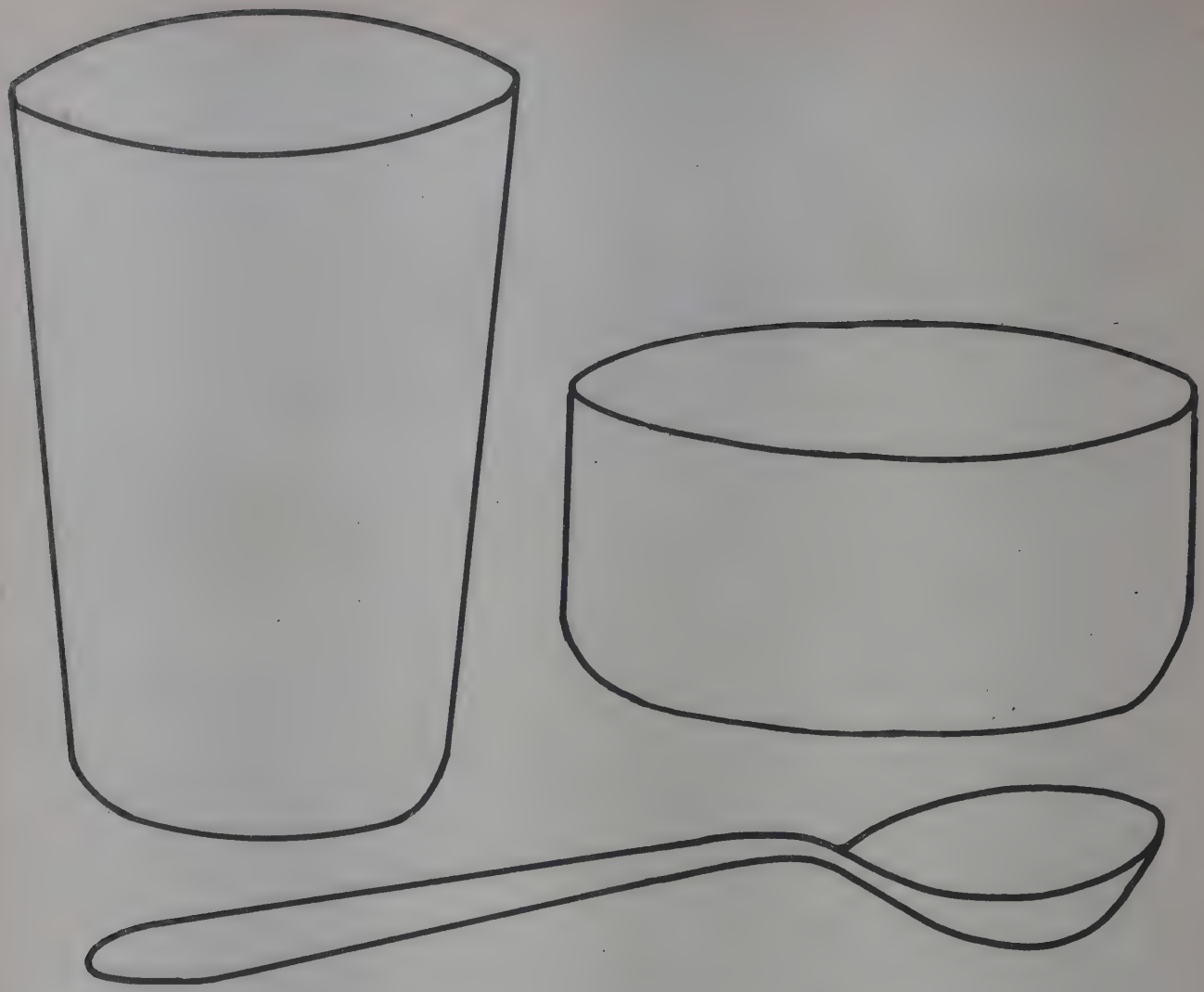
ensure that body-building proteins, energy-giving carbohydrates and fats, and protective vitamins and minerals are included daily in the meals served to the family. It is especially important that pregnant and nursing women, infants and young children eat a balanced diet, because they can easily become malnourished due to extra body requirements.

In order to improve any poor dietary practice in a household, you must interest and assist the decision-makers, e.g. the mother or grandmother. Help them to understand how a balanced diet can benefit all the members of the family. Make sure that any advice you give is within the means of the family.

Balanced diet for a pregnant or nursing woman

All pregnant and nursing women should be encouraged to eat larger portions of the family diet. A balanced diet for a pregnant woman should contain the following:

Food	**Amount per day**
1. Cereals and starchy vegetables	3 servings
Sugar or jaggery	1 spoon* (add to food)
2. Milk or curds	1 to 2 tumblers* (depending on whether or not meat, fish or egg is eaten)
Pulses or legumes	2 servings
or	
Meat, fish or egg	1 serving
or	
Nuts	1 serving (handful)



Food	Amount per day
3. Fruit (seasonal)	1 serving
4. Green leafy, yellow and other vegetables	one or more servings
5. Fats and oils	1 spoon (add to food)

*__Note__: The actual size of the utensils is shown in the figure.

In addition to what is listed above, nursing women need more fluids including an extra glass of milk or milk substitute every day, and an extra serving of yellow and green leafy vegetables and cereal.

If the pregnant or nursing woman is vegetarian and does not eat eggs or cannot afford to have milk, she should be encouraged:

- to eat a handful of groundnuts each day;

- to increase the servings of pulses or legumes from two to three servings a day;

- to substitute milk from animal sources by drinking milk prepared from ragi, groundnut or soyabean.

Diet for infants (0 to 12 months)

The main points to remember about the diet and feeding of infants are as follows:

Breast is best

1. Breast milk is the best food for infants because:
   * it is clean and safe
   * it contains all the necessarey nutrients in the right proportion. Encourage mothers to continue breastfeeding their babies as long as possible. this will provide protein from a safe source.

2. If the mother does not produce enough breast milk for her baby, she should supplement the diet with either animal milk or home made milk substitutes.

4 months: In ADDITION, give cow, goat or buffalo milk

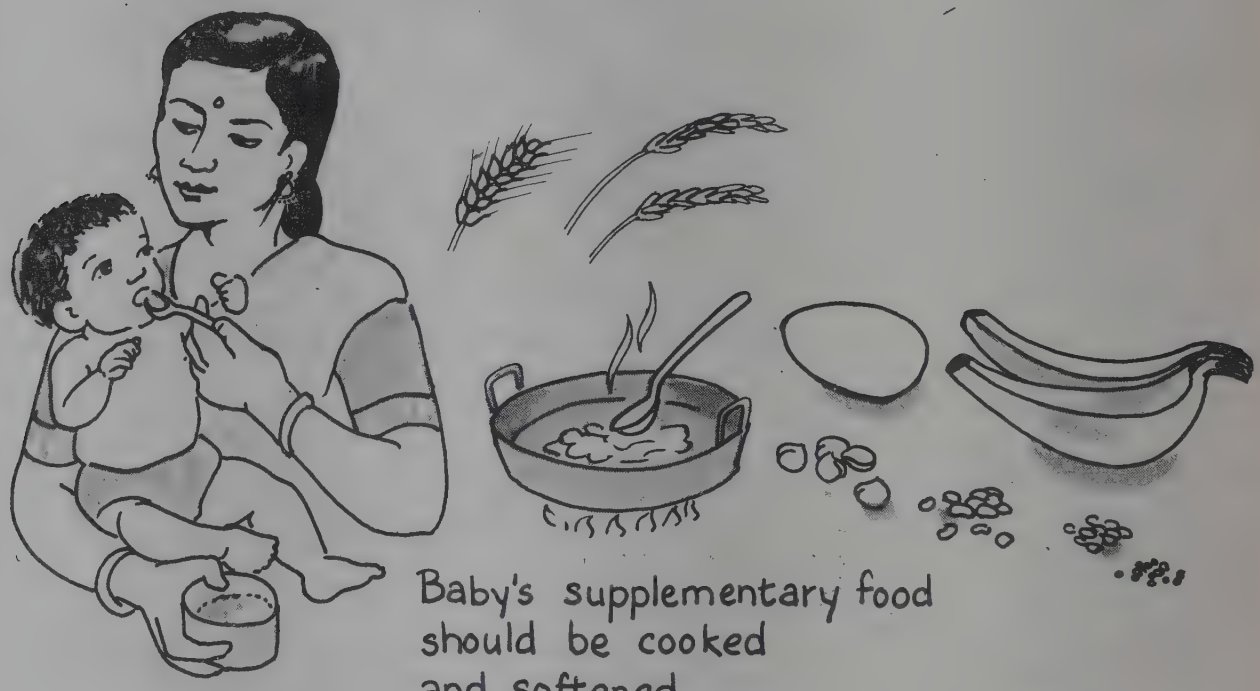
and other nutritious food

3. During the warm season babies should be given small amounts of cool, boiled water, using a cup and spoon or a feeder.

4. Bottlefeeding can be dangerous because it is hard to keep the bottle and nipple clean. Mothers are not always careful to see that the nipple is protected from flies.

5. When the baby is four months old, in addition to breast milk, it should be given other foods. Delay in starting supplimentary feeding is harmful to the infant.

6. When preparing supplementary foods, the mother should do the following:
   * Remove the infant's portion before spices are added to the food for the rest of the family.
   * Only use salt and sugar or jaggery to flavour the food.
   * Strain seeds, remove tough skins or fibre, and cook the food until it is soft.
   * Sieve or mash foods for infants up to the age of nine months and give chopped foods to older children.



Baby's supplementary food should be cooked and softened

   * Use water from a safe, clean source. Boil and cool it for drinking purposes.
   * Wash hands and utensils with soap and clean water before preparing food.
   * Prepare fresh food for each infant feeding.
   * Protect prepared food from dust and flies. Keep it covered.

7. When supplementary feeds are started, follow these rules:
   * Give the baby very small amounts of food (one or two teaspoons) at a time. Introduce new foods one at a time. Give the food either before or during the breastfeed when the baby is still hungry.
   * Gradually increase the amount of food given each day. Do not force the baby to take more than he accepts.

Gowri is 9 months old. Her mother breastfeeds her and gives her a little rice conjee.

Is this enough?

* Increase the number of itmes that the foods are given so that the baby gets five or six feeds a day. This can be done gradually over a period of a few weeks.
* Introduce the baby to new foods each week so that he will develop a liking for different kinds of foods. By the time the child is a year old, it should be getting food from each of the three food groups every day.
* Make the food mixture thicker as the amounts that are fed to the infant are increased. Many infants become severely malnourished because they are fed only diluted supplementary foods, e.g. watery soups or thin cereal gruels. Early introduction of semi-solid foods followed by chopped foods is necessary to prevent this from happening.
* Make sure that in addition to breastfeeds, the one year old infant is getting **at least half of his daily diet in protein foods, i.e. dal, animal milk or milk substitutes.**
* Give the infant a cereal and a protein food at each meal. Foods which contain vitamins and menerals should be given every day.

The following are some supplementary foods which can be given in addition to breast milk to infants from four months of age onwards;

- Animal milk or milk substitutes from vegetable sources (groundnut, ragi or soyabean)
- Rice, suji, ragi or wheat dalia (made into a porridge with milk and jaggery
- Ripe banana
- Potato and carrot (boiled and mashed)
- Soup prepared from green leafy vegetables, tomato and dals (Bengal gram, red gram, lentils)
- Bread, roti or chapati
- Egg
- Fish or meat (steamed or boiled and minced); be careful to remove all bones
- Curd or buttermilk
- Ripe mango, chikku, orange, apple

Diet for the pre-school child (1 to 5 years)

In many families, children are breastfed until they are two or even three years old and are given diluted conjee or a little of the food eaten by the rest of the family. This happens because mothers and others who care for children do not know that children need proportionately more food for their size than is needed by adults to meet the requirements of their growth and energy.

A balanced diet for pre-school children is given below:

Food	1. to 3 years	3. to 5 years
1. Cereals and starchy vegetables	1 katori* or 1 to 1½ chapatis	1¾ katori or 2 chapapti
sugar or jaggery	1 spoon*	2 spoons
2. Milk or curds	1 tumbler*	1 tumbler
Pulses, legumes, meat or fish	4 spoons	¼ katori
Egg	1 daily or a minimum of 4 eggs a week	
3. Fruit (seasonal)	1 serving	1 serving
4. Green leafy, yellow and other vegetables (cooked)	1 to 4 spoons	¼ katori
5. Fats and oils	1 spoon	2 spoons

* See figure on page 112 for size of utensils.

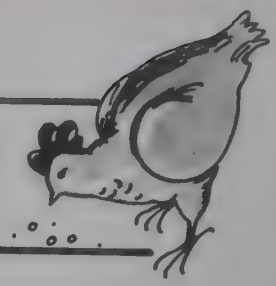
Pre-school children should eat more often than the adults in the family and should have cereals and pulses with every meal.

The following foods should be avoided in the diet of pre-school children:
- highly spiced dishes and curries;
- foods made with large amounts of sugar;
- poorly cleaned or insufficiently cooked foods.

The child under three years should be fed two or more snacks in addition to the regular family meals. The four or five year old child should be given frequent, small feeds (five to six feeds a day).

The major causes of malnutrition in infants and young children are:
- Early cessation of breast feeding
- Delay in adding solid foods to their diet

Children, like chickens,
should always be pecking.



- Not feeding them frequently enough
- Inadequate amounts of energy-giving and body-building foods
- Insufficient foods containing vitamin A and iron
- Repeated bouts of infection and illness.

Kitchen gardens

Encourage families to plant kitchen gardens. This will provide fresh fruits and vegetables which are good for health.

Besides, sullage water can be utilized and disposed of in a hygienic way.

Avoid growing root and tuber vegetables which are eaten raw and may be contaminated. Banana, guava and papaya trees, tomato, ladies fingers, brinjal, pumpkin and spinach are ideal for kitchen gardens irrigated by sullage water. Take the help of the agricultural workers in starting kitchen gardens.

Nutrition education

Some of the topics which you should talk about in relation to improving the diet for the family include the following:

1. Selection, storage and preparation of food

- Plan the daily diet for the family so that it contains food from each of the three food groups.
- Buy foods which are in season because they will be cheaper and plentiful. Try to buy at least one which can be served raw.
- **Clean and wash** vegetables or fruit **before cutting** to preserve nutrients. **Do not soak cut vegetables in water.**
- Well scrubbed vegetables and fruit do not need to be peeled or scraped before cooking or eating. Vegetables such as potatoes cooked in their skins retain more nutrients.
- Many kinds of leaves and tops of vegetables, e.g. beetroot, radish,

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cauliflower, knol-khol, turnip and carrot, are rich in protective nutrients and should be used.

- Preserve nutrients in food during cooking in the following ways:
  * Use the minimum amount of water in cooking; do not throw away excess water after cooking rice and vegetables; use any water left for making a soup or curry.
  * If cereals or dals are soaked before cooking, use the same water for cooking because it contains dissolved nutrients.
  * Cover root vegetables so as to cook them in their own steam. This also reduces the cooking time.
  * Cook green leafy vagetables quickly in a little boiled, salted water.
  * Do not use soda to preserve the colour of vegetables or to soften them. Soda destroys the nutrients.
  * Avoid over-cooking or re-heating vegetables or keeping them warm on the fire. These practices destroy the nutrients.

2. Simple methods for enriching the family diet

- Green leafy vegetables added to dough while making roti or chapati will increase the vitamins and minerals in the meal.
- Protein can be increased by adding a handful of dal or groundnuts to plain rice, roti or chapati.
- Serve some vegetables, e.g. tomato and carrot, raw instead of cooked. This is beneficial as valuable nutrients are preserved.
- Substitute millet (bajra, jowar or ragi) for the usual staple cereal (rice, wheat or maize) once or twice a week. These millets are rich in calcium and iron.
- Use cereal-millet or cereal-millet-pulse mixtures instead of a single cereal. This will add extra vitamins and minerals and some protein at little cost.
- Use unmilled, handpounded or parboiled rice instead of raw milled rice. This increases the vitamin B content of the diet.
- Sprouted pulses, i.e. Bengal gram, black gram or green gram, have a high vitamin B and vitamin C content. They are also more digestible. They are especially good foods for young children.
- If cereal and dal are fermented (as in preparing idli and dosa), the vitamin B content of both foods increases.
- Mix pulses e.g. moong dal and masur dal, with a cereal as in khichiri. This improves the quality of the protein eaten.

3. Diets for pregnant and nursing women

- Women in this group need to eat larger quantities of the family diet.
- Pregnant and nursing women should have extra servings of milk or milk substitutes. They should eat pulses, green leafy and yellow vegetables, and fruit daily.

4. Infant feeding (0 to 12 months)

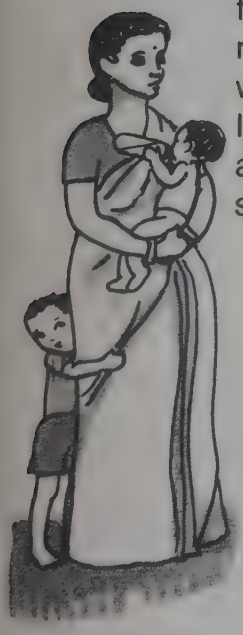
- The diet for infants for the first four months should consist of breastfeeds and cool, boiled water, using a clean cup and spoon or feeder.
- When the baby is four months old, start giving it porridge.

- Later give the baby semi-solid foods which are well-cooked and mashed. By the time the baby is 9 or 10 months old, he should be getting some well-cooked foods. By one year the baby should be eating most of the regular family diet in five or six small meals spread thoughout the day.
- Breastfeeding should continue throughout the first year and for as long after that as possible. from the fourth month, breastfeeds should be supplemented by animal milk or home made milk substitutes.
- The incidence of 'weaning diarrhoea' can be reduced by giving infants only pure water for drinking, keeping the area around the house clean, and paying attention to personal hygience and food sanitation when preparing food for infants,.

5. Feeding the pre-school child (1 to 5 years)

- The pre-school child needs to be fed four or five times a day including snacks, in order to get the amount of food which it requires for good health. The mother should use a separate katori for feeding the child so that she knows how much food the child eats.
- Even when the child is ill with fever or diarrhoea, he should continue his feeds. A sick child needs plenty of food and especially plenty of protein. This will help him to get better faster.
- The child should be given a tumbler of milk or a milk substitute daily in addition to foods from each of the three food groups.

Malnutrition



Malnutrition occurs when the body does not get the right kinds of food in the amounts needed for good health. It can range from a mild form, which has minor ill effects on health, to a severe form which can cause retarded growth, permanent disability, or even death. In India the most severe forms (marasmus, kwashiorkor, nutritional anaemia and vitamin A deficiency) are commonly found among pre-school children and pregnant and nursing women.

Malnutrition is more likely to develop in the following children:

- The child is one of twins.
- The child had a low birth weight.
- Breastfeeding stopped before the child was three months old.
- The child has an infection, especially diarrhoea or measles.
- One or both parents are dead.
- The child comes from a migrant family
- The mother has low intelligence.

- There are four or more children in the family.
- The child is cared for during the day by an older sister or brother while the mother works.
- The child has a sister or brother who is less than one year younger than him.
- The child's sister or brother is malnourished.

The younger the child, the more dangerous is the outcome of his malnutrition. Whenever you find a young child (under 5 years) whom you suspect may be malnourished;

— Take a general history.
— Ask the mother about the amount and kind of food she gives the child. Ask how often she feeds the child.
— Check that the child is receiving vitamin A every six months.
— Weigh and measure the child regularly.
— Examine the child and treat any infections, e.g. diarrhoea or worms.
— Advise the mother about health care and how to feed the child.

Identification and prevention of malnutrition

Some of the methods that you can use for identifying malnutrition in children in the community are as follows:

— Weigh and measure infants and children up to five years of age at regular intervals. Classify them according to the growth chart.
— Measure the Mid-Upper-Arm-Circumference (MUAC) of children from 1 to 5 years using the MUAC strip (or scale).

Weighing and measuring children

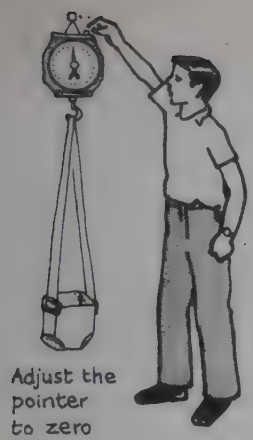
The best and most reliable method for early identification of young children who are malnourished is to weigh them regularly until they are five years old. Every newborn baby should be given a growth chart (or road-to-health chart).

Children may be weighed at the Subcentre clinic or in the home. This should be done monthly for infants and at intervals of three to six months for those children who are older. Children who do not show consistent growth and weight gain are either sick or malnourished.

Encourage parents to bring their children regularly to the Subcentre for a health examination, weighing and measuring.

Method of weighing children from zero to five years using a spring scale

i. Hang the scale securely from a beam or a branch of a tree. Keep the dial at eye level so that the weight can be correctly read.
ii. Place the cradle or infant sling on the cradle hook. Adjust the pointer to zero by turning the screw at the top of the scale.



This scale shows
3500 gm
(or 3·5 Kg)

iii. The scale is graduated from 0 to 25 Kg. Each Kilogram is divided by a 500g marking. If the pointer is in between the kilogram and 500g marking, read it as 250g.

iv. Undress the child with the help of the mother. It is better to weigh the child naked if it is not too cold.

v. Place the child in the cradle with the help of the mother.The child's feet should not touch the ground. Ask the mother to stand nearby and talk to the child so it does not cry. The mother should not touch the child when its weight is being read.

vi. Read the weight on the scale while standing exactly opposite the scale. Do not read the scale from the side. If the child is struggling, try to calm it with the help of the mother, and when it stops moving, read the weight quickly.

vii. Enter the weight on the child's Health Card and its Growth Chart.

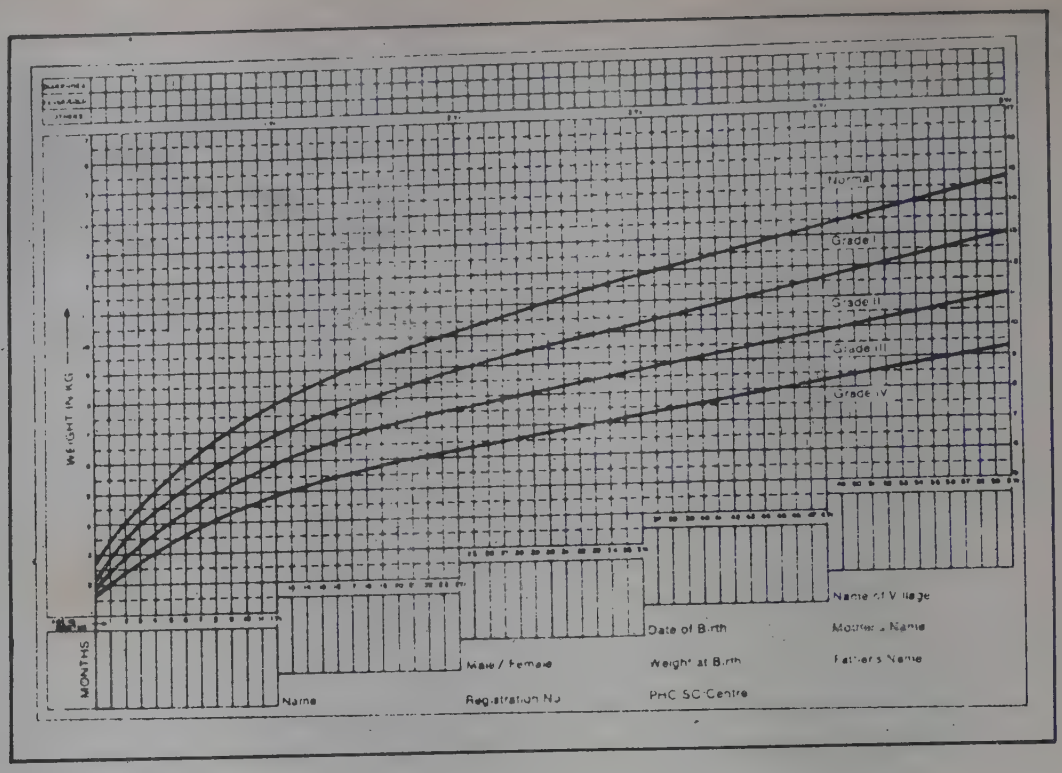
viii. Check the accuracy of the scale every week with a standard weight.

Interpreting the growth chart

There are four curves printed on each growth chart. The weights of all healthy normal children should fall above the top curve. Weights falling below this curve indicate malnutrition of varying degrees.

Weight of child	**Grade of malnutrition**
Above first curve	—
Between first and second curves I	(Mild)
Between second and third curves II	(Moderate)
Between third and fourth curves III	(Severe)
Below fourth curve IV	(Severe)

Growth Chart



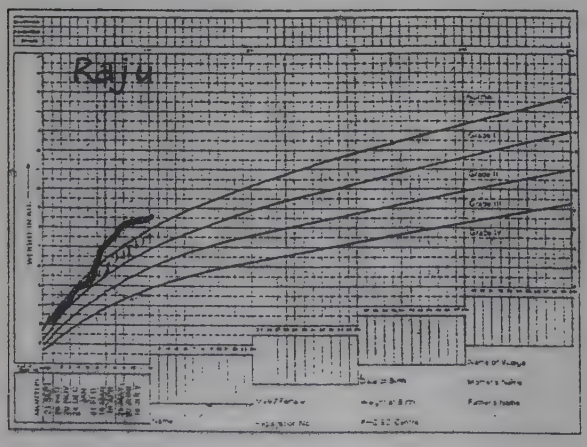
Action to be taken

(a) A child whose weight is above curve 1 is normal.

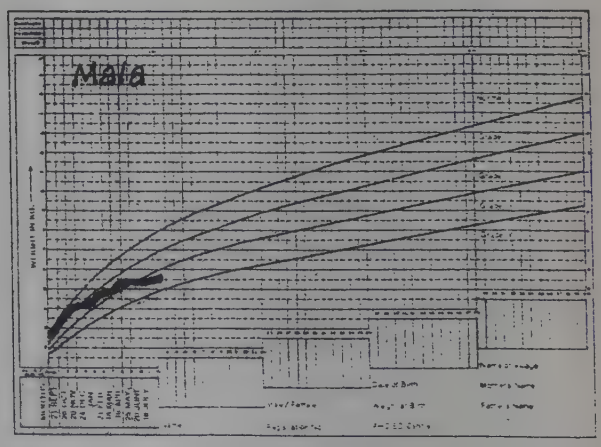
(b) If the weight falls between curves 1 and 2 on the growth chart (Grade I), the mother should be advised to give the child extra food at home and to give the child the necessary health care.

(c) If the weight falls between curves 2 and 3 on the growth chart (Grade II), refer the child to the Anganwadi for supplementary nutrition. Advise the mother to give the child extra food at home.

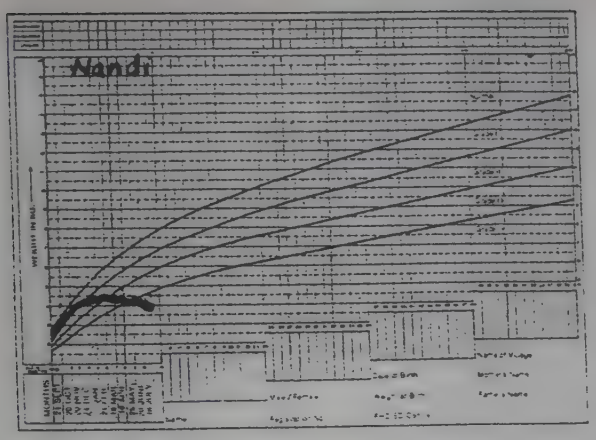
(d) If the weight falls between curves 3 and 4 on the growth chart (Grade III),



• HEALTHY:
Raju is growing well



• IN DANGER:
Mala needs extra food



• IN GREAT DANGER:
Nandi is malnourished and needs special care

the child is severely malnourished. Refer the child to the Anganwadi for therapeutic food or special weaning foods. Show the child to the MO PHC.

(e) if the weight falls below curve 4 on the growth chart (Grade IV), the child should be hospitalized for nutritional therapy and rehabilitation.

Measuring Mid-Upper-Arm-Circumference

Children aged one to five years who are malnourished can also be indentified by measuring the circumference of the middle of the upper arm. This is usually the method of choice in the home using the specially marked MUAC Strip.

Procedure:

i. Let the child's left arm hang loose at the side of his body. The arm should be straight. It should **not** be bent at the elbow.

ii. Place the strip firmly around the middle of the left upper arm. It should not be so tight that the skin is wrinkled.

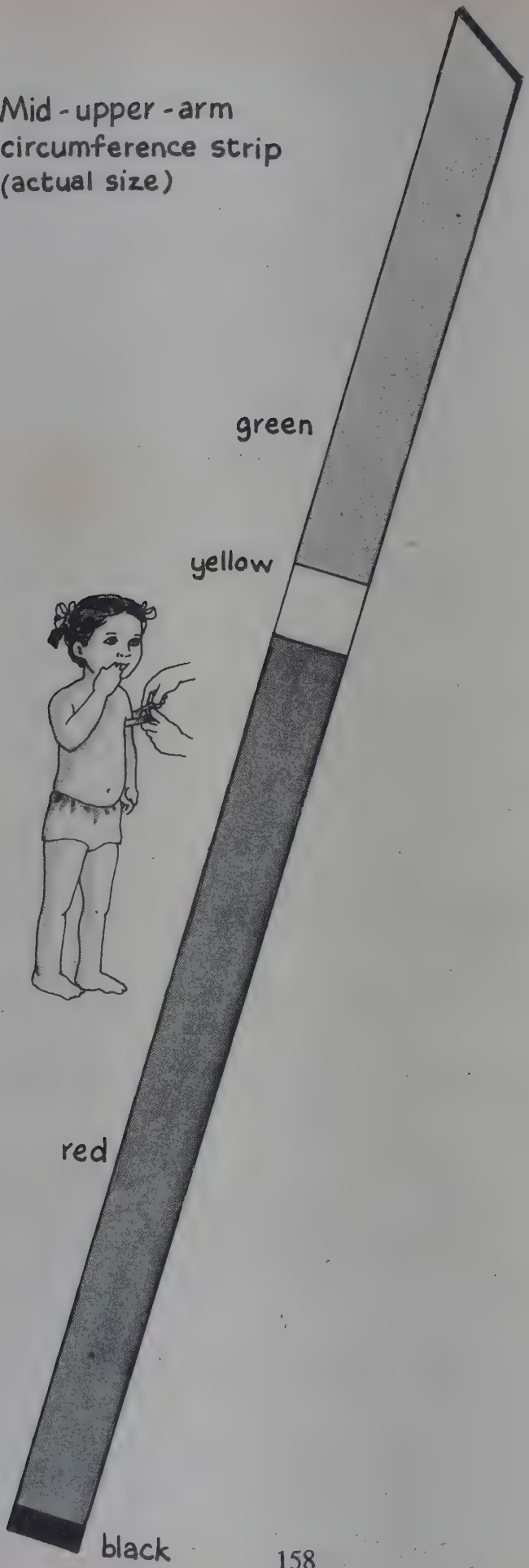
iii. Note whether the black line at the end of the strip comes against the red, yellow, or green part of the strip.

Any child between the ages of one and five years is considered to be malnourished if the measurement falls either within the yellow or red portions of the strip, i.e. if the circumference is less than 13.5 cm.

Action to be taken:

Colour and circumference	**Nutritional status**	**Advice or action**
green Above 13.5 cm	Normal nutrition	Check that the child is being fed a balanced diet.

Mid-upper-arm circumference strip (actual size)



Colour and circumference	Nutritional status	Advice or action
Yellow 12.5 cm to 13.5 cm	Moderate malnutrition	i Advise the mother what to feed the child. ii.Refer the child to the Anganwadi for supplementary nutrition.
Red below 12.5 cm	Severe malnutrition	Refer the child promptly to the PHC.

Signs and symptoms of nutritional deficiency

You should be familiar with the common nutritional deficiency diseases. These are as follows:

PROTEIN ENERGY MALNUTRITION (PEM)

This condition is most commonly found in children between the ages of 6 months and 3 years of age. It occurs whenever a young child lacks enough carbohydrates, or protein, or both, in his diet.

There are two severe forms of PEM which are known as marasmus and kwashiorkor, each of which has its own set of characteristic signs.

	Marasmus	**Kwashiorkor**
Weight for age	Very much below normal	Below normal; may be masked by oedema
Growth		
Muscles	Very thin upper arms; child is skin and bones	Thin upper arms; can be masked by oedema
Oedema of feet and legs	No	Yes
Hair colour and texture	Normal colour or lighter but softer than in other children	Lighter than in other children or reddish and brittle; easy to pull out
Skin	Shrivelled and wrinkled; child has the face of an old man	Stretched and taut; flaking off of skin like old paint; pale patches
Appetite and behaviour	Usually accepts food offered; alert but looks anxious	Poor appetite; looks miserable; weak cry; does not want to run about and play
Stools	Sometimes loose; may also be constipated	Often loose
Diarrhoea	Sometimes	Often
Anaemia	Sometimes	Sometimes
Vitamin deficiencies	Sometimes found	Usually found

MARASMUS
from not eating enough

KWASHIORKOR
from not eating enough protein

Sometimes a child can have both marasmus and kwashiorkor.

Marasmus and kwashiorkor are serious diseases. They can cause illness and death. They can result in retarded physical growth and can affect the mental development of the child.

Refer any child who has marasmus or kwashiorkor to the PHC without delay.

ANAEMIA

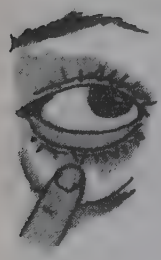
Anaemia is a condition which is commonly found in pregnant and nursing women and in young children.

Pregnant women who are anaemic often have serious complications, e.g. haemorrhage during childbirth. They have babies who are anaemic and whose birth weight is low.

Children who are anaemic suffer from minor illnesses more often than those who are healthy. The illness is often more severe than in normal children.

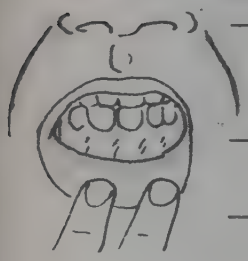
Anaemic individuals generally take a longer time to recover from infections.

During your home visits, look for persons whose skin in pale, and those who tire easily and have little energy. These are the signs that are commonly found in anaemia. If you find such a person, do the following:



1. Examine the lower eyelid to look at the colour of the conjunctiva. Remember to wash your hands before doing this and be careful not to touch the conjunctiva since germs on the fingers may cause infection. If the conjunctiva is pale pink or colourless, the person is anaemic. A bright pink conjunctiva usually means that there is no anaemia.

2. Examine the lower lip to look at the colour of the mucosa lining the mouth. If it is very pale pink or colourless, the person is anaemic. A bright pink mucosa usually means that there is no anaemia.



3. Find out the percentage of haemoglobin in the blood by the Tallqvist method as follows:

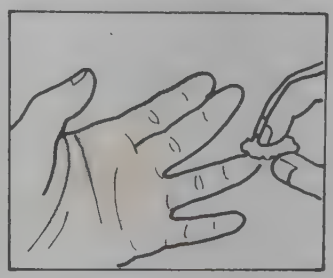
Equipment needed:

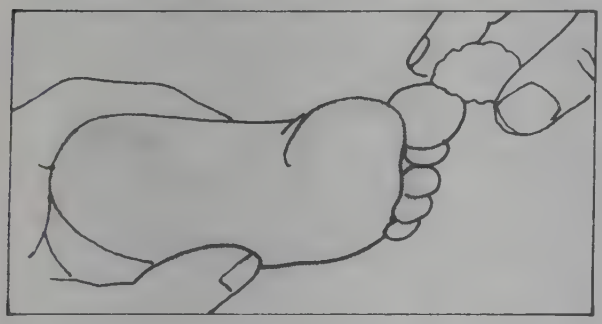
— Sterile Hagedorn needle embedded in a cork and kept in a container of spirit. (Clean the needle and container and change the spirit at least once a week.)

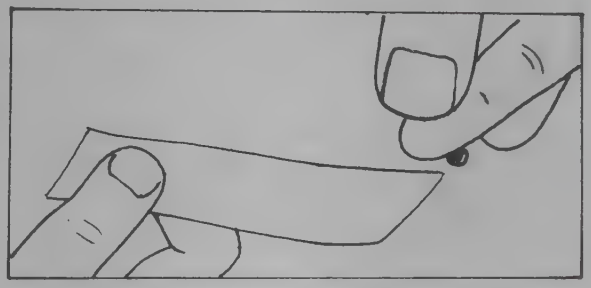
— Spirit or antiseptic lotion

— Cotton wool

— Tallqvist papers and colour scale.







Procedure:

i Wash your hands and let them dry by shaking in the air.

ii Hold the individual's finger, usually the left middle or ring finger, or in children the left big toe, tightly to collect a good supply of blood.

iii Wipe the area to be pricked, i.e. the side of the finger tip or big toe, with cotton wool moistened with spirit or antiseptic lotion and let it dry.

iv. Remove the needle from its container, shake off any excess spirit, and with a quick jabbing motion prick the finger or toe.

v. Squeeze the finger or toe until a large drop of blood appears and blot it on to a piece of the Tallqvist paper.

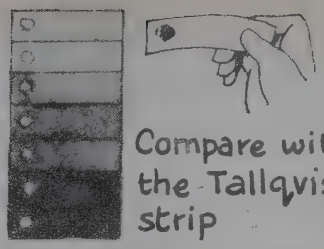
vi. Place a piece of cotton wool moistened with spirit on the finger and ask the person to press it with his thumb until bleeding stops.

vii Compare the colour of the blood on the paper with the colour on the Tallqvist scale to determine the haemoglobin level.

ix. Record the haemoglobin level on the individual's health card.

x. Clean the needle and replace it in the container

xi. Explain the results of the test to the individual.



The Tallqvist method is a very rough method of determining whether a person is anaemic. If necessary, the patient should be sent to the PHC whether the extent of anaemia can be more accurately measured.

4. If the person is anaemic, find out it there are any other causes besides deficiency of iron in the diet. For instance, hookworm, malaria, bleeding piles or heavy menstrual periods can also cause anaemia.

5. If the haemoglobinis 10 to 12 g (70 - 80 per cent) in adults, or 8 to 12 g in children, give iron and folic acid tablets. Advise foods rich in iron, e.g. green leafy vegetables and karela.

6. If the haemoglobin is less than 10 g in adults, or less than 8 g in children, refer the patient to the PHC for treatment.

Under the scheme for prophylaxis against nutritional anaemia in mothers and children, iron and folic acid tablets are given to all pregnant and nursing women, women who have accepted family planning, and children under five years.

Dosage of iron and folic acid:

Category	Dose	Dosage of folic acid	Dosage of ferrous sulphate
Preganant & nursing women & family Planning acceptors	one tablet daily	0.5 mg daily	200 mg daily
Children under 5 years	one tablet daily	0.1 mg daily	67 mg daily

Give the treatment for 100 days. Dispense a 2 to 4 weeks supply of the drug. Tell the patient (or the parent)that iron and folic acid are special drugs for preventing nutritional anaemia.
Instruct the patient give iron and folic acid tablets or the parent as follows:
- Take the tablets daily in the prescribed dosage. This will make the treatment effective.

- The drugs can irritate the stomach. Therefore, take the tablets with some food or at mealtime.

- The drugs will make the faeces black. This is an expected effect of iron. It should not cause alarm.

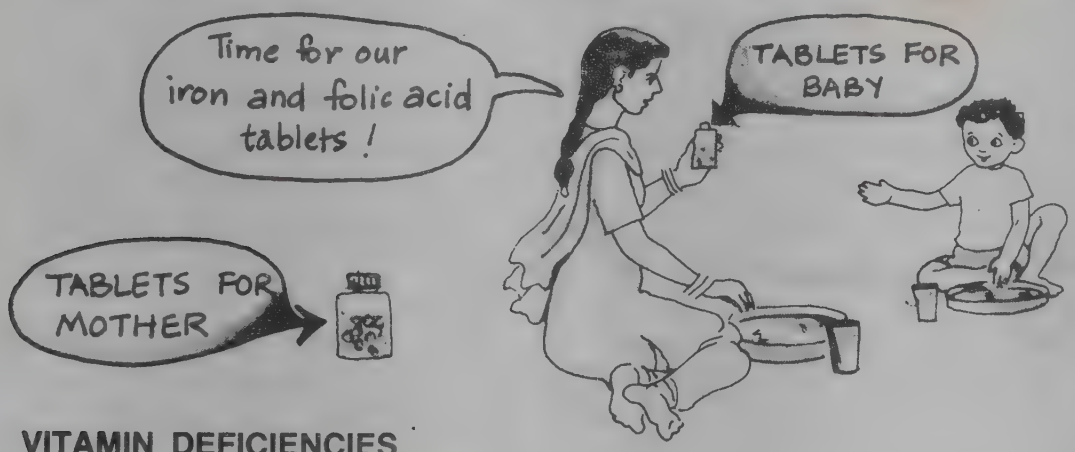
- If symptoms like diarrhoea or indigestion occur, inform the HWM or HWF. The dosage or frequency of the drugs may have to be changed.

- After 3 months of treatment the blood test will be repeated. This will show whether or not the haemoglobin level has improved.

- Keep the Medicines out of reach of small children.

- Collect further supplies of tablets from the Subcentre, or from the HWF, HWM, HG, or anganwadi worker.

- Eat foods rich in iron such as green leafy vegetables and Karela.



VITAMIN DEFICIENCIES

Vitamin A deficiency

Vitamin A deficiency in the diet is a very serious health problem in India, especially among pre-school chilkdren (1 to 5 years). It causes changes in the eye, resulting in partial or total blindness. The deficiency often occurs in malnourished children during or immediately following an infection, e.g. pneumonia, measles, whooping cough, diarrhoea or malaria.

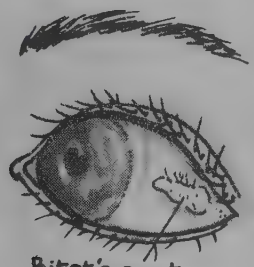
There are various eye changes which can occur in those who do not have sufficient vitamin A in their diet. These changes are as follows:

- A decrease in the ability to see at night or 'night blindness'. This is an early sign. It precedes physical changes and can be easily treated. A mother who is very observant may say that her child stumbles in the dark or has to grope for its food when eating the evening meal.

- Dryness of the conjunctiva. The eye lacks its normal shine. The conjunctiva looks dry and wrinkled and there is brown or muddy discolouration of the

normally white portion of the eye. A mother may say that her baby does not shed tears when he cries. This can be treated by giving vitamin A.

- Foamy white, circular, oval or triangular spots, about the size of dal grains appear on the outer, upper part of the sclera (white portion of the eye). These spots (Bitot's spots) are most commonly seen in school-age Children. When found in younger children they are always associated with dryness of the conjunctiva. These spots disappear with treatment with vitamin A.



Bitot's spot

- If vitamin A deficiency is not detected early, the surface of the cornea (clear part of the front of the eye) becomes rough, looks dull and lacks its normal shine. This is still a reversible stage, but if it is unchecked, it can progress to changes which cannot be cured.

- The cornea develops an ulcer. This can be partially reversed if it is treated in time. Otherwise, it results in destruction of the cornea and blindness. All such cases should be given vitamin A and referred immediately to the PHC.

- If vitamin A deficiency is not detected and treated in time, the cornea melts into a dirty yellow, jelly-like mass. There is destruction of the eye and permanent blindness. Infection of the eye almost always follows. This stage can be reached very rapidly within one to three days and sometimes within hours. if the condition is not treated, the other eye may also be affected leading to total blindness. All Such cases must be immediately referred to the PHC.

Remember that these eye changes do not necessarily occur in sequency, especially in very young children who have severe vitamin A deficiency.

You should always carefully examine the eyes of children for signs of vitamin A deficiency, especially those who are:

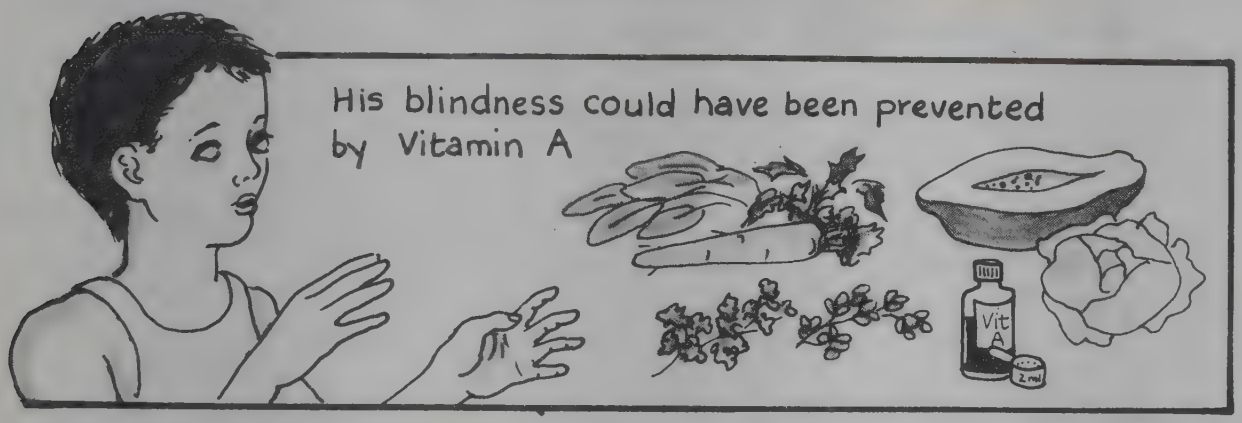
- between one and five years of age;

- suffering from moderate or severe malnutrition;

- suffering or recovering from fever or infection.

Prevention and treatment of vitamin A deficiency in the community :

* As a prophylactic measure all children between the ages of one and five years should be given 200,000 units of vitamin A solution orally once every six months.
* All children in whom there are obvious eye changes should be given 200,000 units of vitamin A solution immediately if it has not been given during the last six months. if the eye changes are severe, give vitamin A and refer the case immediately to the PHC. Any adult showing eye changes should be referred immediately to the PHC.
* All children suffering or recovering from infection, e.g. diarrhoea or measles, or from malnutrition should be given prophylactic vitamin A solution.
* Mother and those who care for children in the communicy should be taught about the need to include a vitamin A rich foods such as yellow vegetables and fruit and dark green leafy vegetables in the diet.



Note: Always initiate treatment before you refer a case of suspected vitamin A deficiency in a child under five years of age. Remember that if appropriate treatment is not provided promptly, especially in the case of very young children, it will often be too late to save sight.

Your task is to administer vitamin A solution to as many children aged 1 to 5 years as possible in each village. In order to achieve a high coverage of such children and to avoid duplication of administration, you should work closely with the HWF and the HG. Proceed as follows:

- With the help of the HWF and HG, prepare a list of the children aged 1 to 5 years from your area.

- decide on the two months of the year (6 months apart) when most of the children can be reached in the village, and set the specific dates for administration of vitamin A.

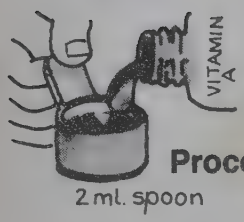
- Select the most convenient place in the village with the help of the HG and community leaders.

- In consultation with the HWF and HAM decide on the pre-programme publicity and health education of the village leaders and parents.

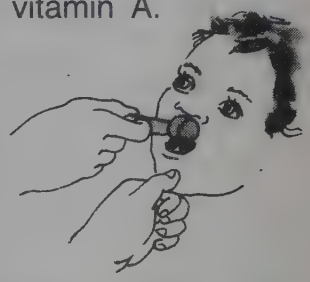
- Help the HWF to estiamte the amount of vitamin A solution needed.

- See that you get sufficient supplies of vitamin A solution in good time.

- Involve the HG in the programme of administration of vitamin A.



2 ml. spoon



Procedure for administering vitamin A solution:

- Use a 2 ml spoon (supplied with the vitamin A solution) or a medicine dropper which is calibrated to measure the prescribed 2 lakhs dose (2 ml).

- Instruct the mother to hold the child in her lap with the head raised so that the solution can be placed in the side of the mouth or on the tongue.

- Press the child's cheeks or press the chin down and administer the solution slowly to avoid the risk of choking.

- If the child spits out the solution, repeat the procedure.

Note: As a prophylactic health measure, children should not be given the two lakh dose of vitamin A more frequently than every six months. Overdose can be harmful.

Vitamin B deficiency

signs and symptoms of vitamin B deficiency include the following:

Cracks at corners of mouth

- The mouth is sore and the tongue looks smooth and red.
- There are cracks and sores at the corners of the lips.
- There is pain, numbness and reduced sensation in the limbs.

When these signs are present, give multivitamin tablets. Advise the person to take foods rich in vitamin B.

Vitamin C deficiency

Persons who do not eat sufficient amounts of fresh fruits and vegetables containing vitamin C develop spongy, bleeding gums. The teeth become loose and haemorrhages (bleeding spots) appear under the skin.

When these signs are present, give vitamin C tablets. Advise the person to take foods rich in vitamin C.

Vitamin D deficiency

Rickets is caused by a deficiency of vitamin D in the diet, or lack of exposure of the skin to sunlight. In children rickets can result in permanent deformities in the bones. There is soreness and tenderness of the body, delayed eruption of the teeth, bow legs, knock-kness, beading of the ribs, and bulging of the bones of the head.

When these signs are present, give multivitamin tablets. Advise the mother to give the child foods rich in vitamin D and to expose the child to sunlight.

MINERAL DEFICIENCIES

Iron (Already described under Anaemia. See pages 159 – 162 .)

Calcium

A deficiency of calcium and vitamin D in the diet can result in rickets in children and also muscular spasms. Such infants will be late in sitting, standing and walking. Other signs include interference with the clotting of blood, brittle bones, deformities such as knock-kness, and poor teeth.

When these signs are present, give calcium tablets. Advise the mother to give the child foods containing calcium.

Iodine

In areas where the food and water are deficient in iodine, goitre is very common. In this condition there is a swelling of the thyroid gland in the front of the neck. Besides goitre, severe iodine deficiency may cause mental retardation and deaf-mutism.

Goitre can occur at all ages and in both sexes. However, it is more common in women.

Goitre can be prevented by using iodized salt instead of ordinary salt. You can help to prevent goitre in your area in the following ways:

- Educate all salt dealers/retailers in the area to supply iodized salt.
- Educate people in the community to use iodized salt instead of ordinary salt in their daily diet. The use of iodized salt by a normal healthy person is not harmful.

Things to do

1. Along with the HWF enter all infants (0-1 year) and pre-school children (1-5 years) in your register. Ensure that every child has a growth chart. Help the HWF in weighing the children and filling in their growth charts.

2. Prepare visual aids for teaching mothers and others in the community about nutrition. These could include:

(a) Sample growth charts showing progress of a healthy child, a child who has diarrhoea, a child who is not given supplementary feeds, etc.
(b) Flannelgraphs of foods from the three food groups.
(c) Flip charts or flash cards on nutritional deficiencies.
(d) Nutrition games.

You can use some of the illustrations in this chapter, or cut out pictures from magazines and calendars, or draw your own.

Use these aids in your nutrition education programmes.

3. Ensure that all the children 1 to 5 years of age from your area are being given vitamin A solution every six months. Meet those parents who are not bringing their children regularly and stress the importance of prophylactic vitamin A.

4. Along with the HWF carry out a simple survey of family nutrition practices in your area. Some questions you could ask are given below:

Things to do -(contd).

- What foods are you giving your baby besides breast milk?
- Do you leave your baby with an older child while you are working?
- Are there any particular foods which you do not eat during pregnancy?
- what fruits and vegetables do you grow in your garden?
- Do you use iodized salt in your daily diet?

You can think of many other questions. Use the information collected in your nutrition education programme in the community.

QUIZ

(a) A pregnant woman complains of weakness. She gets out of breath when she fetches water from the river. What might be her problem? What signs would you look for?

(b) A mother says her three year old daughter often trips over stones and falls when playing with other children in the evening. What questions would you ask the mother? What would you look for in the child? what would you advise the mother?

(c) Are the following statements true or false?

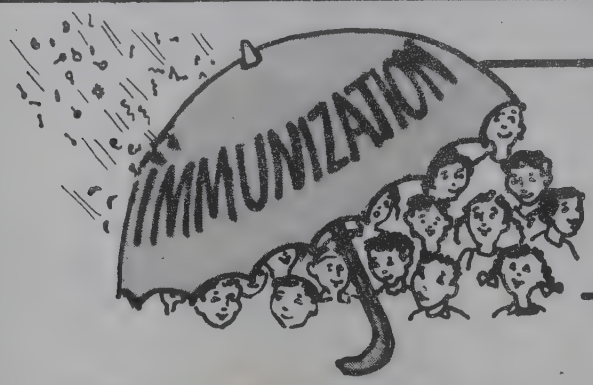
A baby should be taken off the breast by one year. True ☐ False ☐

At four months a baby should be given cereal porridge in addition to breast milk. True ☐ False ☐

If a woman is breastfeeding her baby and she becomes pregnant, she should continue breastfeeding. True ☐ False ☐

A child who is ill should not be given food. True ☐ False ☐

Foods like curds, banana, orange and guava cause colds and should not be given to small children. True ☐ False ☐



A chance for every child

Many infants and children living in the villages still die needlessely or are disabled form a number of communicable diseases. These diseases include tuberculosis, measles, diphtheria, whooping cough, tetanus, poliomyelitis and typhoid. All these seven diseases can be prevented by immunization.

The immunizations available in India under the Immunization Programme are those against the following diseases:

i. Tuberculosis (BCG)
ii. Diphtheria (DPT)
iii. Pertussis (whooping cough)
iv. Tetanus
v. Poliomyelitis
vi. Measles (available at some centres)
vii. Typhoid

Your responsibilities related to immunization

-Administer BCG vaccine to all children before one year of age.

-Administer three doses of DPT vaccine and oral polio vaccine to all infants from 6 weeks to one year of age.

-Administer measles vaccine, where available, to children from 9 to 12 months of age.

-Administer two doses of tetanus toxoid to all pregnant women.

-Assist the HAM in giving DT, TT and typhoid vaccine to schoolchildren.

-Educated the community about the need for immunization.

-Plan your activities related to immunization with the HWF.

-Maintain the required records and submit reports.

National Immunization Schedule

The National Immunization Schedule recommends the ideal age group for giving each vaccine. The Schedule is as follows:

Beneficiaries	Age	Vaccine	No. of doses	Interval
Pregnant Women	16-36 weeks of pregnancy	TT*	2	Not less than one month
Infants	**6Weeks—9months**	DPT	3	Not less than one month
		Polio	3	Not less than one month
		BCG	1	
	9-12 months	Measles (where available)	1	
	16—24months	DPT	1 (booster)	
		Polio	1 (booster)	
School-children	5-6years	DT**	1(booster)	
		Typhoid	2	Not less than one month
	10Years	Typhoid& TT**	1(booster)	
	16years	Typhoid& TT**	1 (booster)	

*If vaccinated earlier one booster dose is adequate during subsequent pregnancies.

The ages shown for the vaccinations are considered best. If there is any delay in starting the first dose, the periods may be adjusted accordingly. However, your aim should be that every child receives 3 doses each of DPT and polio vaccines and one dose of BCG and measles before its first birthday.

DPT, polio and BCG vaccines can be given at the same session but at different sites. Different vaccines should *not* be mixed together in the same syringe.

Contraindications to immunization

Unless the child is seriously ill, there are no contraindications to immunization. You should postpone immunization only if the child has:

-high fever

-acute illness

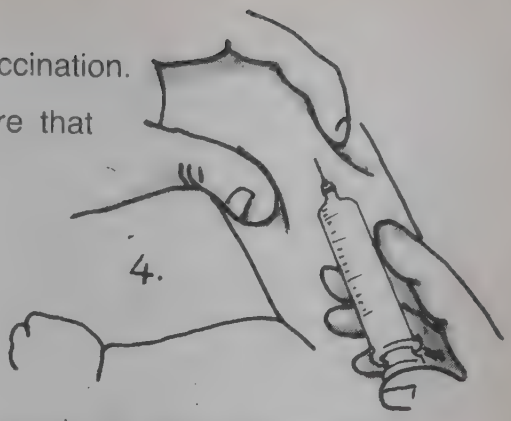
-history of convulsions.

Methods of administering immunizations

Immunizations are given by different routes. The routes that you will be using for giving immunizations are as follows:

1. By mouth, e.g. oral poliomyelitis vaccine.
2. Into the upper layer of the skin (intradermal), e.g. BCG vaccination
3. Into the muscle (intramuscular), e.g. DPT, DT, TT and typhoid vaccinations

4. Under the skin (subcutaneous), e.g. measles vaccination.

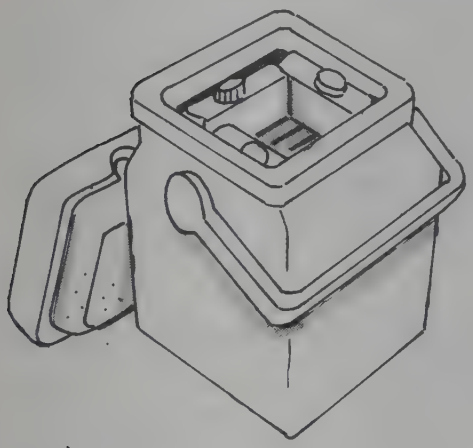


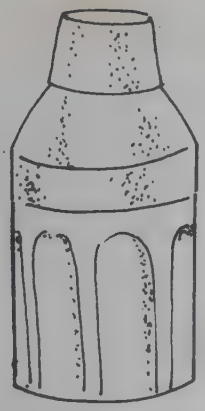
Before giving any vaccine, you must make sure that you know the proper route for administering it.

Care and storage of vaccines*

All vaccines must be:
-stored at a temperature between 2^0C and 8^0C
-protected from sunlight
-prevented from contact with antiseptic solutions such as spirit or savlon.

Vaccines should be carried in a vaccine carrier or thermos flask packed with ice or ice packs.





Vaccine carriers: These are used for carrying small amounts of vaccines to the Subcentres/villages if necessary. They are light and you can easily carry them. They are made of insulation material that prevents the warm air from getting in. They can keep the vaccines cold for about two days at an ambient temperature from 32^0 to 43^0C if the ice packs are fully frozen and the lid is tightly shut. There are four ice packs which must be fitted to the sides. Before using a vaccine carrier make sure **that** :

-it is clean

-there are no cracks

-the ice packs are fully frozen

-the lid shuts tightly.

Cold packs: Cold packs (ice packs) are used for lining the walls of the vaccine carriers to keep them cold. They are flat plastic bottles filled with water. Some cold packs have sealed tops while others can be opened. Cold packs are filled

*Ref: The Cold Chain Equipment, Dept. of Family Welfare, Govt. of India

3/4th with plain water. Salt should *not* be added to the water as it lowers the temperature below zero degree Celsius which is not recommended for DPT, DT, TT and anti-typhoid vaccines. Cold packs are frozen before use. This is done by keeping them for at least six hours in a deep freezer, or in the freezer compartment of the refrigerator overnight.

Thermocole boxes: Thermocole boxes are available in different shapes and sizes. When packed with ice they can keep vaccines cold for about 6 to 8 hours. Thermocole boxes are cheap and light but are not durable. They can be used only for one day's supply of vaccine. Ice packs are not available with thermocole boxes and ice must be used. When a thermocole box is packed, the ice should be kept on the *top* of the vaccine vials, but *not* in direct contact. Pack the ice in a polythene bag to keep it from settling to the bottom and also to prevent the vials getting wet as the ice melts.

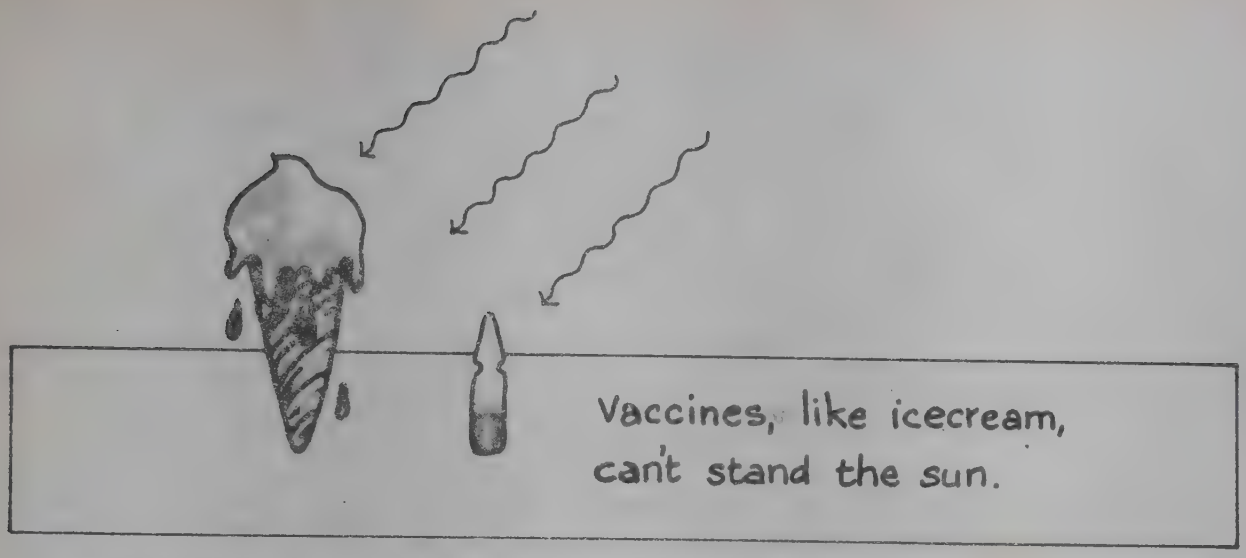
Thermos flasks: A thermos flask can be used to carry a small amount of vaccines for the day's use only, but it must contain enough ice to keep the vaccines cold. If the volume of ice is at least half the volume of vaccines, it should last for a day. Open the flask only when necessary, e.g. to remove the vaccines, or to add more ice, or to remove ice for cooling the diluent and reconstituted vaccine at the vaccination site.

When a flask is packed, the ice should be on **top** of the vaccine vials, but **never** in direct contact with the vials of vaccines. Place a sheet of plastic between the vaccine vials and the ice. Do not drop vaccines or ice into the flask. This will break the glass liner of the flask. Some flasks may have special shaped cold packs to fit over the vaccines. If the flask does not have this, pack the ice in a plastic bag to keep the ice from settling to the bottom of the flask or coming into contact with the vaccine vials. Keep the whole range of vaccines required for the day's vaccination in one flask, so that only one flask is opened at one time.

A basket that is larger than the flask can be filled with grass, paper or other such material, or the flask can be wrapped to protect it from being broken. If the wrapping material is kept damp and the basket is kept in the shade and the weather is dry, it will keep the outside of the flask cooler and the ice will last longer. However, there must always be ice in the flask while the vaccines are kept in it.

Thermos flasks are very fragile. A knock or fall may easily break the glass liner. The vaccines will become warm in a broken flask. If the glass liner breaks, get more ice if possible and keep the vaccines cold. Do not throw away broken flasks. The glass liner can be replaced.

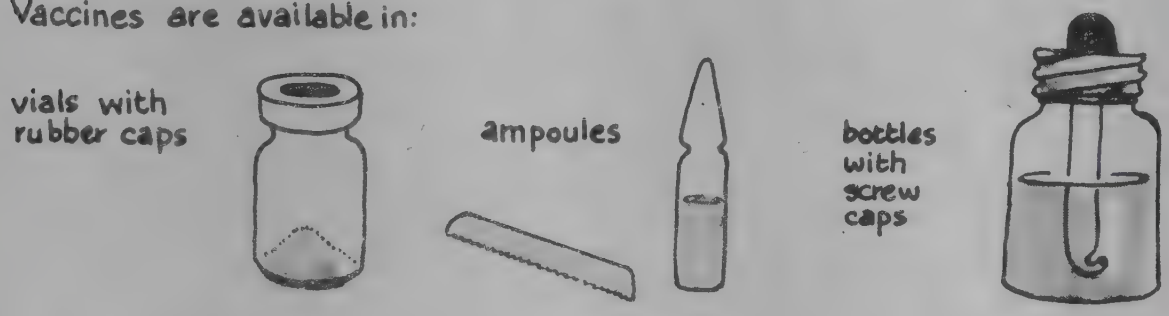
All vaccines must be stored at temperatures recommended otherwise they will get spoilt and become useless.



Preparation of vaccines for administration

The vaccines that you will be using to give immunizations to children and pregnant women are available either in liquid or in powder form. It is important that you keep vaccines sterile during preparation, reconstitution and administration. If this is not done, the vaccines will not be effective and there may be infection.

Vaccines are available in:



The vaccines in liquid form generally come in multiple-dose vials with a sealed rubber cap at the top; or in sealed ampoules; or in small bottles with screw-tops which have attached calibrated or non-calibrated medicine droppers. The vaccines which come in powder form are packed in sealed glass ampoules or vials. The diluents or liquid which must be used for mixing the vaccines into solution are usually packed in either multiple-dose vials or in sealed glass ampoules.

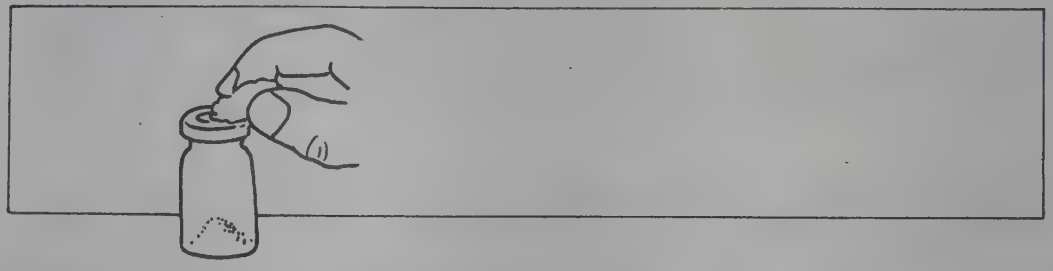
Dosage and administration

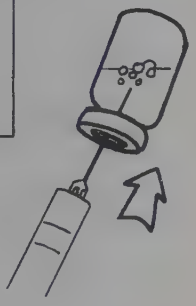
Vaccine	Dosage	Method of administration	Site of administration	Remarks
DPT DT TT	0.5ml	Intramuscular	Buttock, arm or thigh	

Dosage and administration

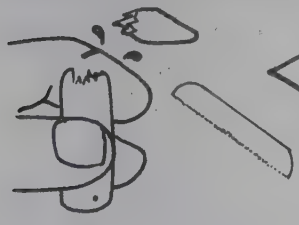
Vaccine	Dosage	Method of administration	Site of administration	Remarks
BCG	0.1ml	Intradermal	Left upper arm	
Polio	0.5ml	Oral	Mouth	Keep on ice while using
Measles	0.5ml	Subcutaneous	Arm or thigh	Use for 1 hour after reconstitution. Keep on ice
Typhoid	0.5ml (chilren 5-6years)	Subcutaneous or intramuscular	Arm or thigh	

Points to remember:

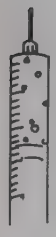


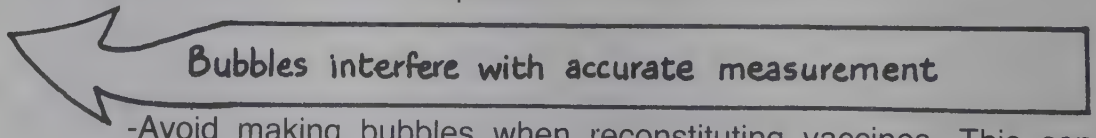


-Inject air into the vial before withdrawing a dose in order to make withdrawal of the solution easy.



-Protect fingers when filing and opening glass ampoules to avoid cuts.





-Avoid making bubbles when reconstituting vaccines. This can interfere with accurate measurement.

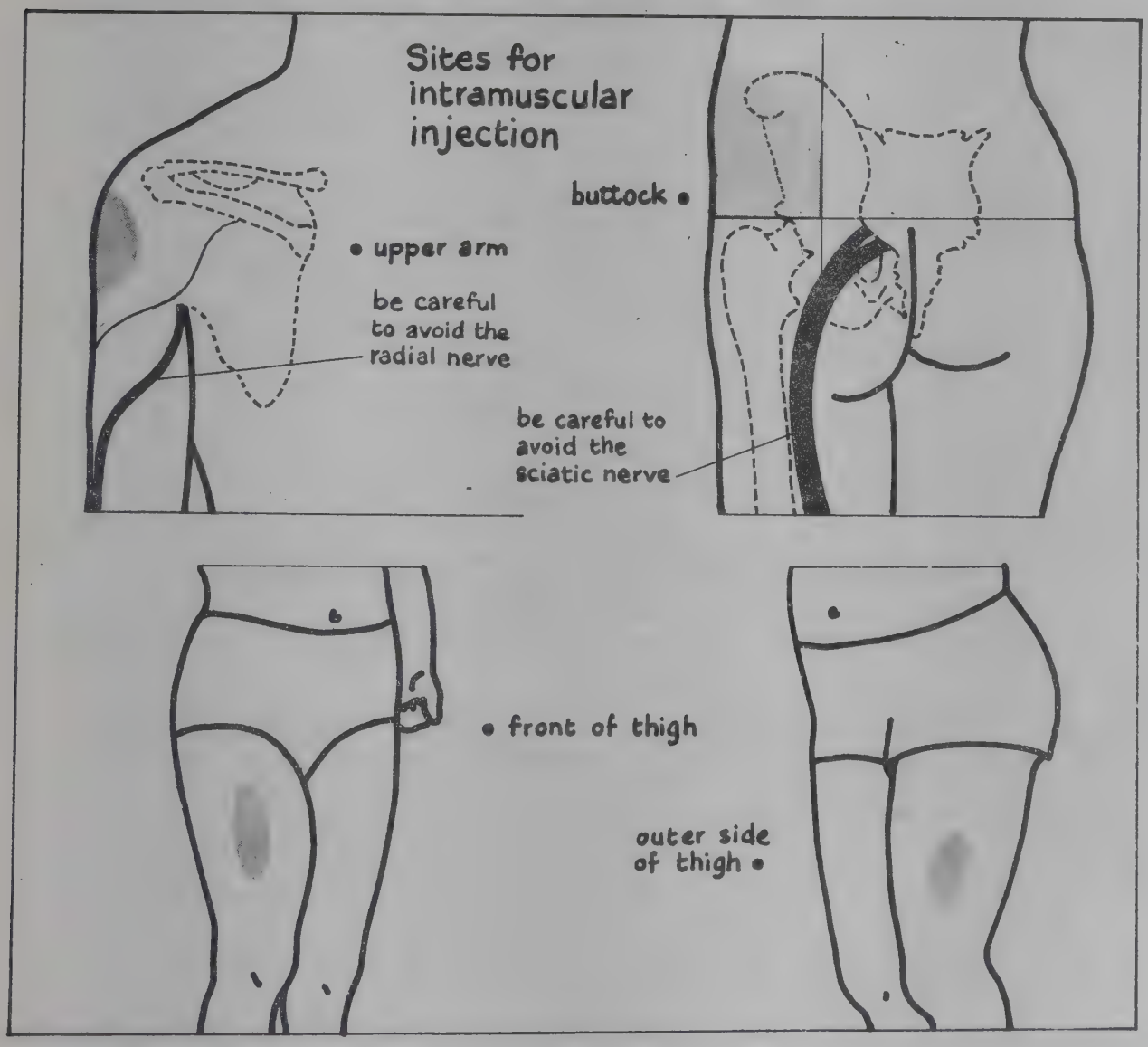
Sites used for administering vaccines

Certain sites on the body are selected for giving injections. This avoids injury to nerves. It also prevents vaccines being injected into large blood vessels. The commonly used sites are as follows:

For intramuscular and subcutaneous injections (DPT, DP, TT, Measles, Typhoid):

-The upper arm two to three finger widths below the point of the shoulder on the outer side. Be careful to avoid the radial nerve which runs obliquely across the back of the upper arm.

-The buttocks can be divided by imaginary lines into four parts and the injection given in the upper outer part. Be careful to avoid the sciatic nerve in the hip. Usually this site is not used for infants who are not yet walking since it is not sufficiently well developed.


Sites for intramuscular injection
buttock
upper arm
be careful to avoid the radial nerve
be careful to avoid the sciatic nerve
front of thigh
outer side of thigh

-The front of the thigh. This site does not have large nerves and is easily accessible. It is commonly used in children. There is less pain if the thigh and knee are slightly flexed before injection.

-The outer side of the thigh closer to the knee than the hip.

For intradermal injections (BCG):

-Use the left upper arm, outer portion, for BCG vaccination.

Site for Intradermal Injection (BCG)

Points to be kept in mind about administering immunizations

-Select the site as follows:

* Inspect the size of the muscle.

* Check that the site is free of bruises or any sore areas.

*Avoid an area that has any scratches, cuts or skin disease.

*Make sure that the area selected is free of nerves or large blood vessels (as described above).

-Restrain children while giving injections. This can be done by a parent or other adult. This will avoid accidents such as the needle breaking during injection.

-Gain the confidence of parents by health teaching. They must know what kind of discomfort the children may suffer after immunization and what they should do about it. Otherwise they may not allow immunization of their children.

Store the vaccine properly. Discard any vaccine that has been improperly kept or left over.

-Use the correct technique. This will ensure good results.

BCG vaccination

To protect a person from tuberculosis, BCG vaccination must be administered before he is exposed to the disease. This is why high priority is given to administering BCG to infants within the first year of life.

Persons eligible to receive BCG vaccination:

-All children below one year of age. You and the HWF will be responsible for administering BCG vaccine to all infants.

Storing and transporting the vaccine:

-BCG vaccine available in India is a freeze-dried vaccine which must be stored at 2° to 8°C (referigerator).

-Carry the vaccine in a thermos or vaccine carrier packed with ice when trasporting it for any distance, e. g. from the PHC to the Subcentre.

-Light rapidly destroys BCG vaccine, either freeze-dried or in the reconstituted form. The vaccine should be protected against light throughout, during storage as well as during transport and use in the field.

Reconstituting BCG vaccine:

Equipment required :

-Sterile 5 ml syringe

-Sterile 20 gauge needles

-BCG vaccine ampoules

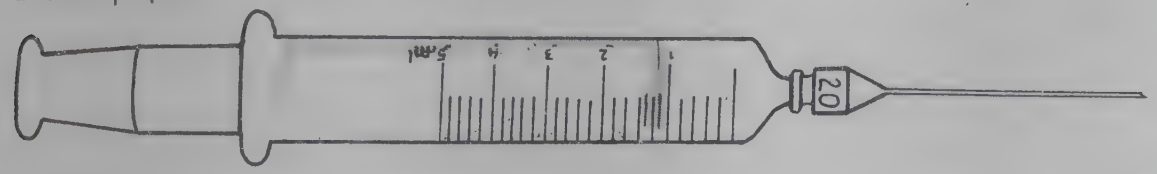
-BCG diluent ampoules

-Ampoule file

-Ampoule holder

-Plastic sheet

-Black paper.



Proceed as follows:

i. Examine the ampoules and discard them if
-there are colour changes

-the powder appears to be wet

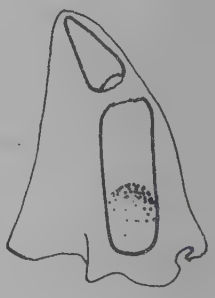
-there are cracks or the ampoule is broken

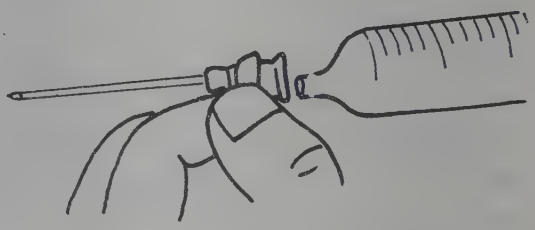
-there is no label on the ampoule

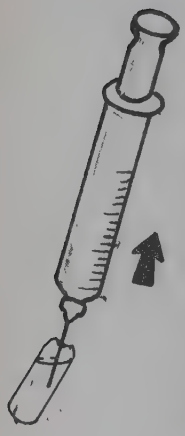
-the date of expiry is over.

ii. Make sure that all the powder in the ampoule is at the bottom of the ampoule. If not, tap the lower end of it by gently flicking your forefinger against the glass until all the powder falls to the bottom.

iii. Wash your hands.







iv Cut the ampoule containing the powder by filing it at the neck.

v. Cover the neck and the top of the ampoule with a plastic sheet to prevent air rushing inside the ampoule while opening the ampoule.

vi. Break the ampoule at the neck by bending it where the cut has been made with the file.

vii. Place the ampoule in the ampoule holder.

viii. Repeat steps iv, v, vi and vii for the ampoule containing the diluent.

ix. Follow the manufacturer's instructions regarding the amount of diluent to be added to the dry powder.

x. Fix the 20 gauge needle into the 5 ml syringe, withdraw the required amount of diluent from the ampoule and gently inject 1 ml of the diluent along the walls of the ampolue containing the dry powder. If you use too much force in injecting the diluent, bubbles will form in the solution. Avoid this because it will interfere with accurate measurement of the vaccine

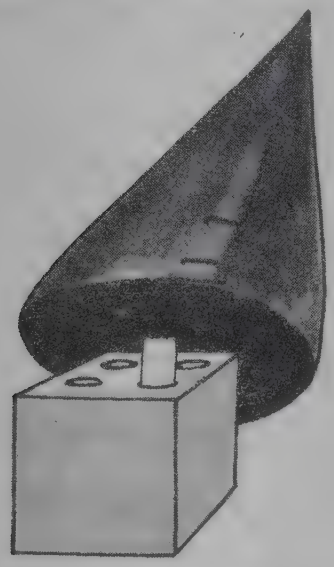
xi. Mix the vaccine by gently rolling the ampoule between the palms until all the powder is dissolved.

xii. Flame the mouth of the ampoule and needle again and inject the rest of the diluent with a little force to ensure that the whole is thoroughly mixed.

xiii. Roll the ampoule between the palms again.

Note: If any of the diluent is lost during reconstitution, the strength of the solution will not be accurate. So you must open another ampoule of powder and diluent and begin the procedure over again.

xiv. Keep the ampoule of reconstituted vaccine in the ampoule holder in a cool place. Protect it from light by wrapping black paper in the shape of



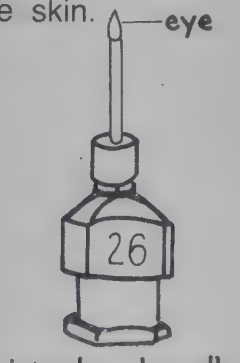
a cone around it. Remember that BCG is a live vaccine which can easily lose its potency if it is not handled properly.

Technique for intradermal administration of BCG vaccine:

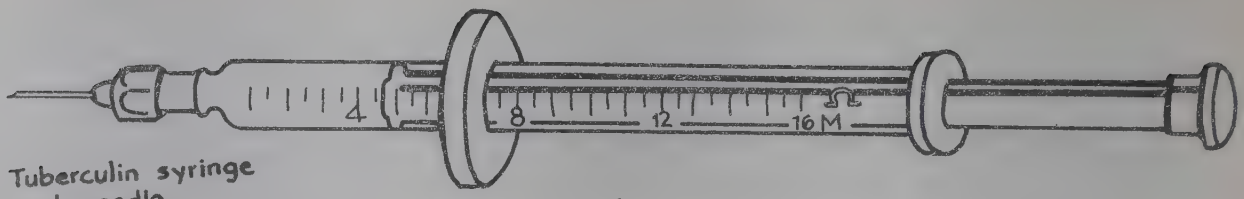
An intradermal injection is given in the uppermost or superficial layer of the skin. In order to be able to inject a vaccine or drug intradermally, a special sized needle and a special tuberculin syringe with fine markings are needed. The needle must be introduced at a particular angle to the skin.

Equipment needed:

-Sterile metal box containing needles and syringes
-Sterile needles 26 gauge, 1 cm
-Sterile tuberculin syringes (calibrated in 1/100 ml)
-Wooden block for holding opened ampoules
-Spirit lamp, bottle of spirit and matches
-Metal shield for spirit lamp
-Black paper for covering BCG vaccine
-Rubber rings and slit rubber tubing.



intradermal needle

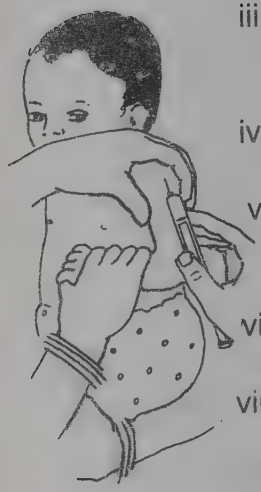


Tuberculin syringe and needle

Proceed as follows:

i. Assemble the tuberculin syringe. Use the proper technique to avoid contamination. Slip on the rubber ring without touching the tip. Attach the 26 gauge needle to the tip. Place the syringe in the rubber tubing so that markings are clearly visible.

ii. Make sure that the 'eye' or opening of the needle and the markings on the syringe are on the same place. This is important so that the correct dose can be injected.



iii. Draw up the vaccine into the syringe. Take care not to touch the needle with the fingers or other unsterile objects.

iv. Place the loaded syringe on a sterile surface.

v. Select the site for vaccination. BCG vaccine is usually given on the left upper arm just below the point of the shoulder.

vi. Wipe the vaccination site with a clean, wet cloth.

vii. Make the skin of the site taut by stretching it slightly between the thumb and forefinger.

viii. Keep the 'eye' of the needle up, hold the syringe parallel along the skin, and insert the needle into the upper or superficial layer of the skin Remember, deep injectione of BCG vaccine cause abscesses and take long to heal. They can also cause inflammation of the lymph glands in the arm pit

ix. Inject the required dose, 0.l ml. A weal or elevation of the skin should form at the site of vaccination. A proper intradermal injection of 0.1 ml of vaccine will form a weal of about 8 mm in diameter.

x. Remove the needle after administering the vaccine and do not rub the site of vaccination.

xi. Replace the used needle by a sterile needle.

xii. Administer the vaccine to the next individual using the same procedure.

xiii. Record the administration of vaccine in the Child Card and in the Eligible Couple & Child Register.

xiv. Discard reconstituted BCG vaccine after use on the same day.

What to expect after BCG vaccination:

Explain to parents the changes which they should expect to see at the site where the vaccination has been given. Alert them to those symptems which require referral to the PHC.

The process of scar formation is as follows:

- The BCG weal or raised spot on the skin is usually absorbed and is not visible after 30 minutes.

- After three to four weeks, there is redness and swelling. A lump appears at the site of vaccination. This is about 3 to 8 mm in diameter.

- By six to eight weeks, the area increase in size 6 to 8 mm in diameter. There may be crusting or pus. If a deep abscess forms, it means that the injection was given incorrectly either into the subcutaneous tissue or into the muscle. If an abscess forms, refer the child to the PHC.
- By twelve weeks there should a well-healed scar at the site of vaccination

Health education:

Emphasize the following points:

- Babies should be immnunized with the first year of life with BCG. This wil protect them against tuberculosis.

- BCG vaccination is a simple, safe procedure. It consists in injecting vaccine into the skin.
- Within three months after the vaccination a scar will form. This shows that the individual is protected against tuberculosis.

- BCG vaccination can be taken at the Subcentre. It can also be taken at other convenient places in the village where groups can be gathered together.

DPT, DT, Diphtheria, and Tetanus Toxoid

The vaccine used for immunizing persons against diphtheria, pertussis and tetanus is available either in a combined form, i.e. as DPT or DT, or as a single vaccine which protects against diphtheria or tetanus. Take every opportunity to protect children under two years of age against diphtheria, pertussis and tetanus. Immunize all pregnant women against tetanus. This is necessary because a large number of babies die from tetanus infection each year in India. You can prevent such deaths by immunizing pregnant women with tetanus toxoid during the prenatal period.

Persons eligible to receive DPT. DT and TT:

Group eligible for DPT:

-Infants from six weeks to one year of age

Groups eligible for DT:

Children from five to six years of age (they no longer need pertussis vaccine)

Groups eligible for TT:

-Pregnant women (between the 16th and 36th weeks of pregnancy)

-School children at the age of 10 years and 16 years.

Storing and transporting the vaccine:

(See section on care and storage of vaccines.)

Dosage of vaccine:

The dose of the vaccine may vary according to the manufacturer and the type of vaccine to be given. For full protection, children under one year of age should receive three doses of DPT at intervals of four weeks. This should be followed by a booster dose of DPT at 16 months to two years of age. A booster dose of DT should be given on entry to school or soon after.

Pregnant women should have two doses of tetanus toxoid. Keep an interval of at least four weeks between the two doses. The second dose should be given two to four weeks before the expected date of delivery. This will protect the infant at birth aganist tetanus. One booster dose of TT should be given in subsequent pregnancies.

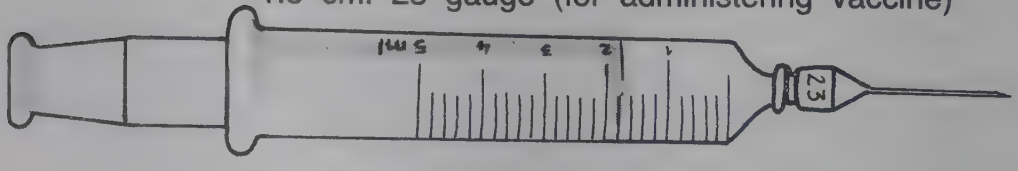
Procedure for administration of DPT, DT and TT:

Equipment required:

-Sterile 2 ml or 5 ml syringe

-Sterile needles 3.5 cm, 18 gauge (for withdrawing vaccine from vial)

1.5 cm. 23 gauge (for administering vaccine)



-Sterile container for syringe and needles

-Vaccine (DPT, DT or TT)

-Cotton swabs.

Proceed as follows:

i. Explain what you are going to do to the person so that he knows what to expect and will be willing to submit to it. In the case of a child, explain to the accompanying adult as well as to the child, if he is old enough to understand.

ii. Assemble the syringe. Be careful not to touch the plunger except by the handle and the needle by the hub. Twist the hub of the needle to make sure that it is securely attached to the syringe.

iii. Place the assembled syringe on a sterile surface, e.g. the lid of the container in which they were sterilized.

iv. Moisten a cotten swab with water and clean the rubber top of the vial. Discard the swab.

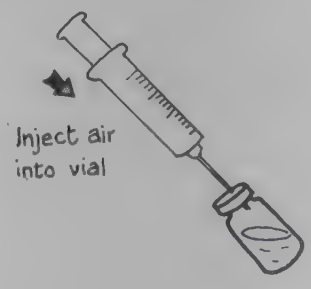
v. Hold the barrel of the syringe in your hand and pull back on the plunger to the marking on it equal to the amount of liquid that you want to withdraw from the vial.

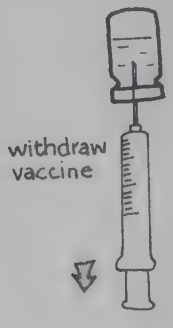
vi. Insert the needle into the rubber cap and push in the plunger to force the air into the vial.

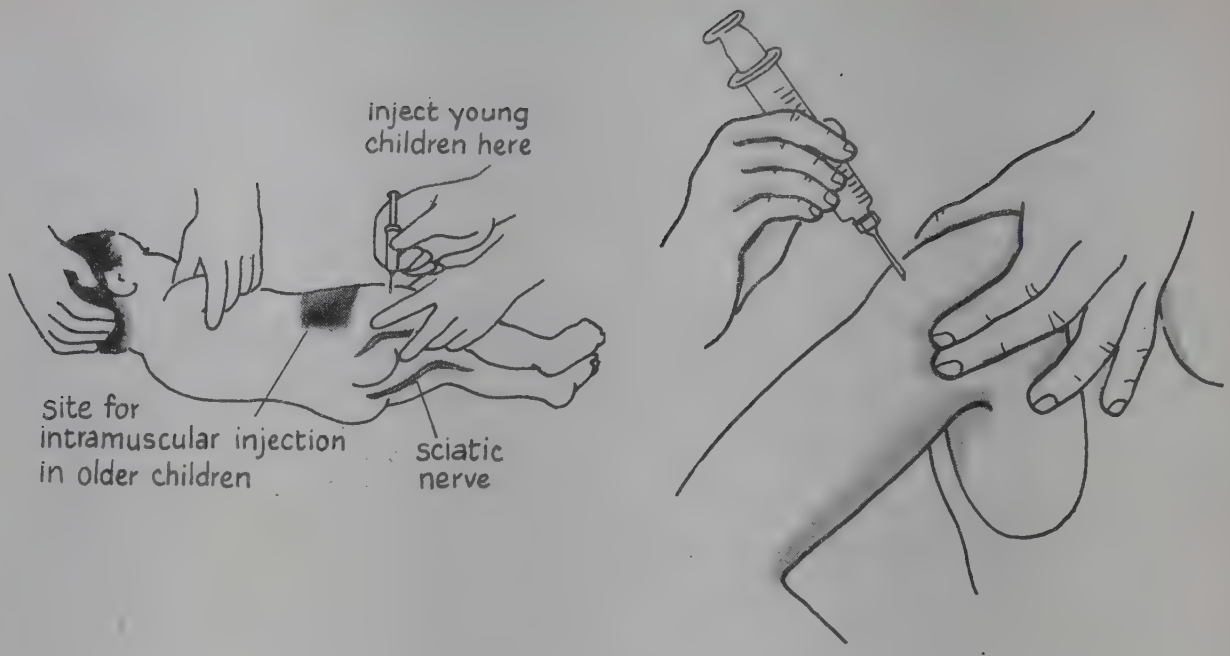
vii. Turn the vial upside down while holding on to the syringe.

viii. Withdraw the amount of the vaccine by pulling on the plunger up to the required marking on the barrel.

ix. Select the site for the intramuscular injection, preferably the middle of the thigh. If you select the buttock let the person lie on his stomach or







on his side. If you select the upper arm, ask the person to place his hand on his hip. In the case of a child, the mother should steady the arm by holding it against the side of the child's body.

x. Clean the skin site selected with a cotton swab moistened with soap and water.

xi. Expel any air bubbles in the syringe by holding the syringe with the needle pointing upwards and pushing in on the plunger.

xii. Stretch the skin by grasping the area between your thumb and forefinger.

xiii. Use your other hand to hold the needle at a 90° angle and pierce the skin smoothly and firmly. Release the skin held by the other hand so that the fluid will not be injected under pressure.

xiv. Before injecting the vaccine, pull back on the plunger. Ensure that the needle has not entered a blood vessel. If blood appears in the syringe, remove the needle from the site. Replace the contaminated needle with a sterile one. Reinsert it at a point about 1 cm from the first site.

xv. If there is no blood when you pull back on the plunger, push it in to inject the vaccine into the muscle.

xvi. Place a cotton swab on the site and withdraw the needle.

xvii. Use the swab to massage the area gently, then discard it.

xviii. Record the administration of vaccine in the Child Card and ECCR.

xix. Instruct the person, or the parent in the case of a child, what to expect following the injection and what to do for symptoms.

Points to remember about administering DPT, DT and TT:

-Read the label on the vial to make sure that you have the correct vaccine for the immunization to be given.

-Measure each dose carefully.

-Never use a needle more than once without first boiling it for 20 minutes.

-The dose is the same whether it is the first or second injection or the booster dose.

The dose that is prescribed is as follows:

DPT: 0.5 ml for infants and children from 6 weeks up to 1 year

DT: 0.5 ml for children form 5 to 6 years

TT: 0.5 ml for pregnant women and schoolchildren.

Reactions to DPT, DT and TT:

Apply cold compress to injection site

child: ¼ tablet

adult: 1-2 tablets

Expected symptoms:

- Slight fever, sore arm and irritability for a day or two.

Treatment:

- Apply a cold compress.

-Give acetyl salicylic acid tablets (¼ tablet to infants 1 to 2 tablets to pregnant women)

Unexpected symptoms:

i. Discolouration or bruising of injection site.
Treatment: Apply a cold compress

ii. High fever, abscess formation, convulsions.
Refer anyone with these complications to the PHC.

Health education:

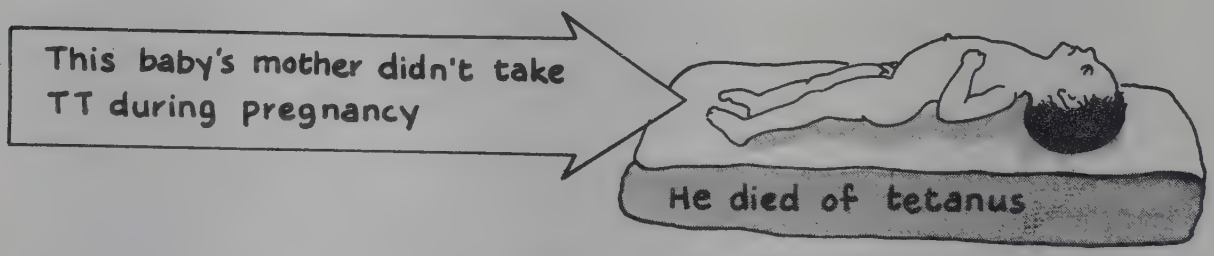
Points for discussion should include the following:

- Infants and young children are vulnerable to diphtheria, whooping cough and tetanus. Many die each year from such infections. They need protection from all three diseases through immunization.

- At least 3 doses of DPT are needed to build up protection in infants and young children. Later, booster doses are needed. One injection is not enough to protect infants and young children against diphtheria, whooping cough and tetanus.

- All pregnant women should get tetanus toxoid during pregnancy. This will protect the newborn baby from tetanus.

- Children need a booster dose when they are ready to enter school.



At this time they will be more exposed to infection and they should be protected.

- Immunization can be given either at the Subcentre or at a convenient place in the village.

- After immunization there may be slight fever, soreness of the site and irritability for a day or two. These symptoms are expected reactions. They should not be a cause for worry or for not taking the second dose.

Note: It is important to explain that three consecutive injections must be given at intervals of 4 weeks for full protection against these diseases.

Poliomyelitis vaccination (oral vaccine)

In India, poliomyelitis vaccine is usually given along with DPT and BCG vaccine. Pay careful attention to maintaining the right temperature of polio vaccine.

Eligibility for vaccination:

The vaccine is given to infants between six weeks and one year. This is the period when the body is able to begin making its own antibodies.

Storage of vaccine:

The polio vaccine used in India is a live vaccine. Hence you must follow certain precautions in storing it. Vaccine carriers and thermos flasks are available for keeping it at 2^0 to 8^0 C. This will ensure that the vaccine retains its potency.

Administering oral poliomyelitis vaccine:

Proceed as follow:-

i. The vaccine comes in a container with an attached medicine dropper.

ii. Examine the dropper provided. Make sure it is not cracked or broken, Discard it if this is so.

iii. Keep the container of poliomyelitis vaccine in a vessel containing ice while you are administering it. If you do not scrupulously follow this, the vaccine which you are giving will be useless since heat destroys its potency.

iv. Measure the dose to be given —2 to 3 drops, according to the manufacturer's instructions

v. Ask the parent or another person to hold up the head and shoulders of the baby or child. Drop the vaccine into his mouth slowly, so that he does not choke. If the child will not open his mouth, press down gently on his chin or press the cheeks.

vi. If the child spits out most of the vaccine, repeat the dose.

vii. After you have given the vaccine, instruct the mother or other adult with the child that they should not give the child any hot (temperature) food or milk for at least half an hour. This is important for ensuring the effectiveness of the live oral vaccine.

viii. Record the dose and date on the Child Card and in the ECCR.

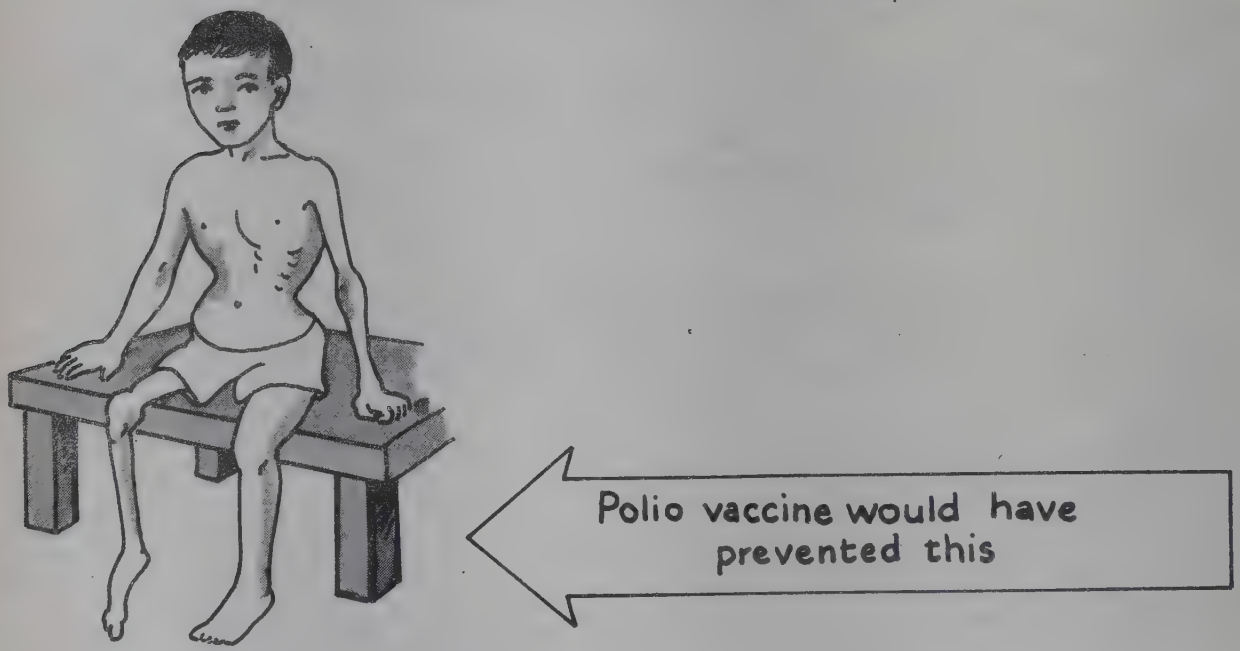
ix. Give the second and third doses at intervals of four weeks.

Health education:

Emphasize the following points:

— Poliomyelitis is a serious disease that can paralyse and cripple arms and legs. But it can be prevented by oral poliomyelitis vaccine.

— The vaccine is given in the form of oral drops.



— In order to be protected, the child needs three doses given at four week intervals.

— A booster dose is necessary at 16 months to 2 years of age.

Measles vaccination

Measles is the most common of all eruptive fevers in childhood. It seriously affects the health and growth of the child. However, this disease can be prevented by giving measles vaccine to the child.

Children eligible to receive measles vaccination:

The age group between 9 and 12 months is the ideal group for immunization with this vaccine. It should not be given before the child is 9 months old.

Storing and transporting the vaccine:

Measles vaccine is a freeze-dried live vaccine. While transporting the vaccine, it should be kept at a temperature below $8^{0}C$.

At the Subcentre or place of vaccination, the vaccine should be kept in a vaccine carrier or thermos flask at a temperature below $8^{0}C$.

Reconstituting measles vaccine:

A diluent is supplied along with the freeze-dried vaccine. With a sterile syringe, remove the whole amount of diluent of one vial and inject it into a vial of freeze-dried vaccine. Mix it well. Be sure that the diluent is also kept cold, i.e. below $8^{0}C$.

Once the vaccine is reconstituted, it should be used within a few hours.

Dosage of vaccine:

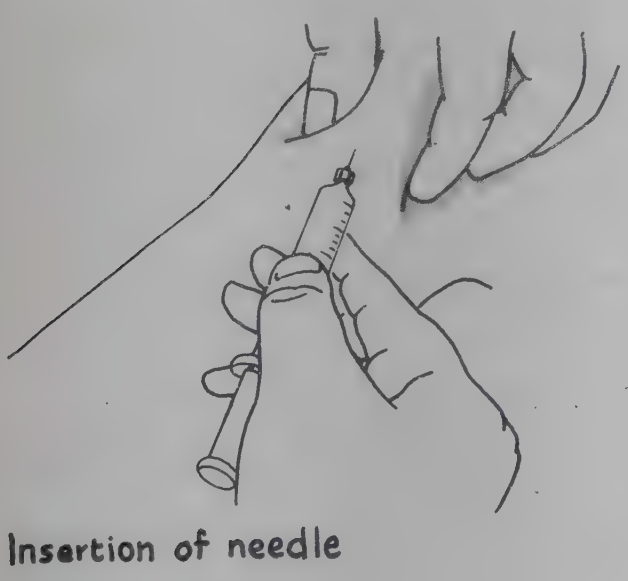
Subcutaneous injection of 0.5 ml (one dose).

Procedure for administration of measles vaccine:

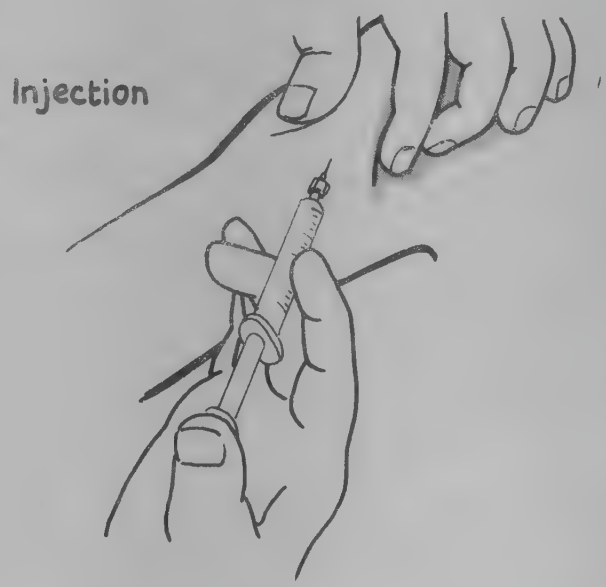
The procedure for administration of measles vaccine is similar to that for intramuscular administration (page 176), except for steps xii to xv which are as follows:

xii. With the fingers of one hand, pinch up the skin on the outer side of the upper arm.

xiii. Without touching the needle, push the needle into the pinched-up skin, so that it is **not** pointing steeply into the arm.



Insertion of needle



Note: To make sure that the vaccine is not injected into a vain, slightly pull the plunger back before injection. There should be no blood in the syringe.

xiv. Press the plunger gently and inject 0.5 ml of vaccine.
xv. Withdraw the needle.

Reactions to measles vaccination:

There may be slight fever, sore arm and irritability for a day or two. In addition, there may be some rash resembling modified measles which usually soon subsides.

Treatment:

— Apply a cold compress.
— Give acetyl salicylic acid tablets (¼ tablet).
— Apply calamine lotion.

Health education:

Include the following points in your health teaching:

— Infants and children are vulnerable to measles.
— Measles is very common in our country. The disease has a serious effect on the growth and health of the child.
— Though measles may not appear to be a serious illness, it can be dangerous. This is especially so in children who are malnourished.
— Only one dose of measles vaccine is required to protect the child.
— the child should not be vaccinated before 9 months of age.
— Measles vaccine is safe and causes very little reaction.

Typhoid vaccination

You will be required to carry out mass immunization with typhoid vaccine if there is an epidemic of the disease in the community.

You will also be required to assist the HAM in immunizing school children against typhoid.

Persons eligible to receive typhoid vaccination:

The eligible groups in the community for typhoid vaccine in an endemic area are:

— School-aged children—5 Years, 10 years and 16 years.

However, during an epidemic, **all** persons in the community should receive the vaccine.

Storing and transporting the vaccine:

— Store the vaccine in the refrigerator at 2^0 to 8^{0}C.
— Transport the vaccine in a thermos flask or vaccine carrier from the PHC to the Subcentre.
— Order only enough vaccine that can be used within 7 to 14 days. remember it will get spoilt when kept at room temperature.

Dosage for typhoid vaccine:

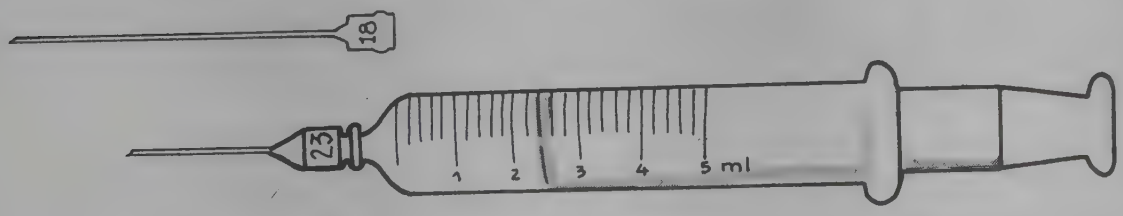
For full protection, an individual should receive 2 doses of the vaccine at an interval of not less than one month. Annual revaccination is necessary for persons living in endemic areas.

Administering typhoid vaccine:

Typhoid vaccine is available at present in 20 dose vials. Therefore, when planning to administer it in the community, you should gather together a sufficient number of persons. This will avoid wastage of vaccine.

Equipment required:

— Sterile 2 ml or 5 ml syringes in sterile container.
— Sterile needles: 3.5 cm length/18 gauge (for withdrawing vaccine from vial)
1.5 cm length/23 gauge (for administering vaccine)



— Cotton swabs
— Typhoid vaccine vials

Proceed as follows:

i. Remove the metal disc covering the rubber cap of the vial and clean the cap with a cotton swab moistened with water.
ii. Assemble the syringe and attach the needle for withdrawing the vaccine.
iii. Withdraw the required amount of vaccine from the vial.
iv. Change the needle for administering the vaccine.
v. Select the site for administering the vaccine which should be either:
— the outer side of the upper arm about midway between the shoulder and elbow
or
— the outer side of the thigh.
vi. Clean the skin site selected using a cotton swab moistened with soap and water. Allow it to dry.
vii. Inject the prescribed dose of the vaccine intramuscularly.
viii. Record the date, name and amount of vaccine administered on the health card of the person.
ix. Tell the person immunized or the person accompanying a child that after the injection the following reactions may occur:
— Soreness and swelling of the site
— Fever
— headache.

These symptoms may last for about two to three days. They should not be a cause for worry. Tell the person to take acetyl salicylic acid tablets to reduce pain and fever and apply cold compresses to the area. If the reactions are more severe than expected, tell him to go to the PHC.

Health education:

Points for discussion are as follows:

- — Typhoid is a serious disease. It is transmitted through food and water contaminated with typhoid bacilli.
- — Individuals can be protected against the disease by taking vaccination with typhoid vaccine. For full protection a person must have two doses of vaccine one month apart.

Promoting the use of immunizations in the community

There is no need to conduct a separate campaign for informing the community about the value of immunizations. You can include this topic along with material and child health, family planning and nutrition as a part of family welfare.

Include immunization in the orientation sessions on health services that you conduct for community leaders. In this way you will be able to get their support for this important health measure for preventing the spread of communicable diseases.

Take the help of the HG and community members for preparing suitable visual aids for use in your educational programmes. You can also obtain attractive audio-visual aids from the Block Extension Educator.

You should educate teachers and anganwadi workers about the value of immunization. These groups have close contact with you children who comprise the target population for immunization. Educate dais about the need for administering tetanus toxoid to pregnant women.

Working with the Health Worker Female

In the Subcentre area you and the HWF will be giving immunizations to infants and pregnant women as well as to older children. Since you will both be visiting the same families, you should both meet periodically and decide on your respective responsibilities regarding the immunization of the members of each family. This will avoid duplication of your efforts.

Records and reports

You and the HWF are expected to keep the necessary records and submit to the PHC a joint monthly report in the prescribed form of your activities regarding immunizations given. This should cover the following points:

— Number of beneficiaries given various types of immunizations, i.e. children up to one year given BCG, DPT, polio and measles vaccine; children above one year given DT, TT and typhoid vaccine; and pregnant women given TT.

— Receipt, issue and balance of stock of vaccine.

Things to do

1. In the first exercise at the end of Chapter 10 you collected information about the number of children in your area who are still not immunized. You also planned with the HWF how to protect all these children by immunization.

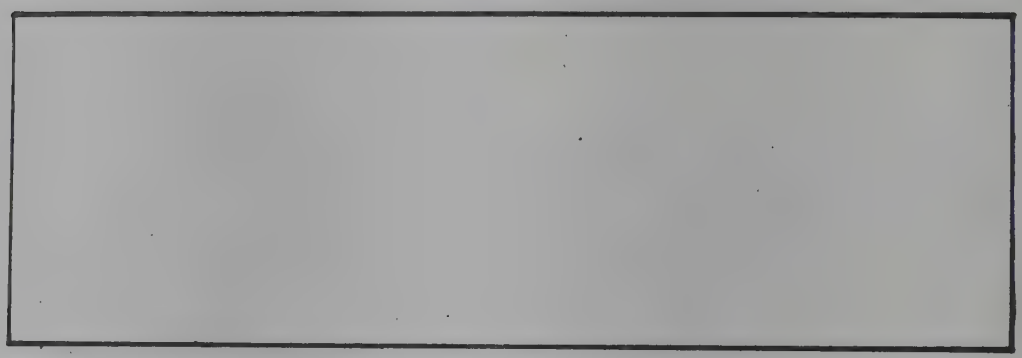
Along with the HWF, Health Assistants and Block Extension Educator, plan and carry out an educational programme in your area for promoting universal immunization. Take the help of the Health guides, community leaders, school-teachers and anganwadi workers in your area.

Follow up the educational programme by carrying out immunizations. Take the help of the MO PHC and other PHC staff. Ensure that you have an adequate supply of vaccine. See that proper arrangements are made for storage and transport of the vaccine.

2. Prepare and procure simple and suitable visual aids for use in your educational programme for immunization. Ask the BEE to help you in preparing and procuring these aids.

PART IV

COMMUNICABLE DISEASES



Chapter 14 How Diseases Spread

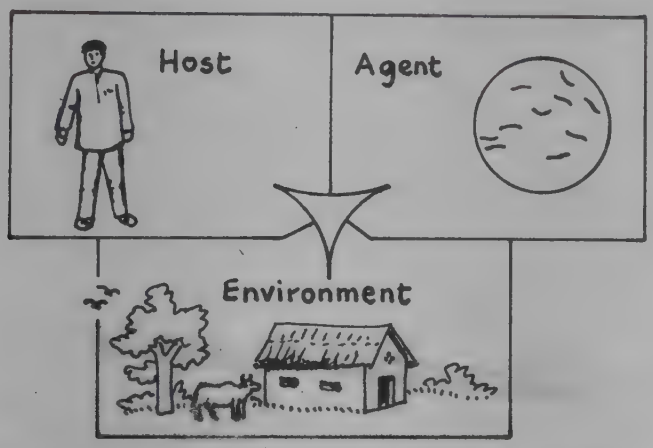
Chapter 15 Diarrhoea, Dysentery and Jaundice

Chapter 16 Malaria, Filariasis, Kala Azar and Encephalitis

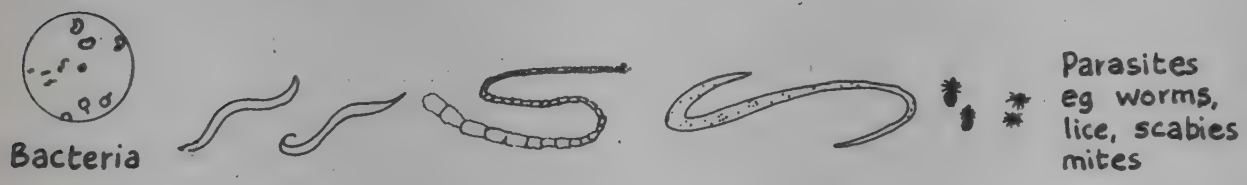
Chapter 17 Tuberculosis and Leprosy

Chapter 18 Other Communicable Diseases (Diphtheria, Whooping Cough, Tetanus, Poliomyelitis, Fever with Rash, Conjunctivitis, Trachoma, Gonorrhoea, Syphilis, AIDS, Rabies and Intestinal Worms)

Disease results from an upset in the balance between the host, the disease agent, and the environment.



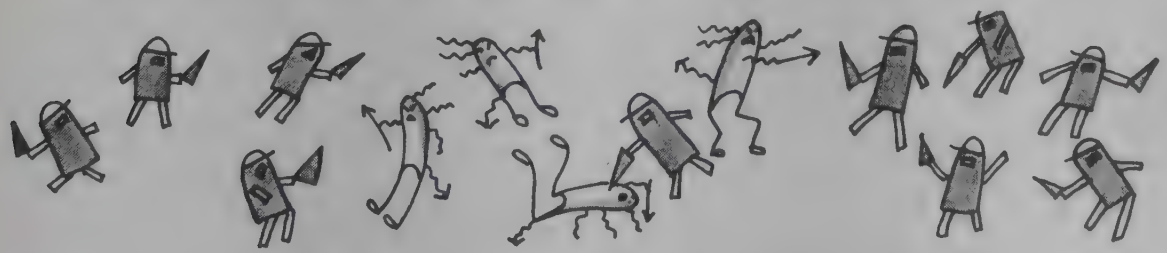
When harmful organisms or germs enter and multiply in the body, they cause infection or an infectious disease. These organisms are usually small living things (bacteria) which are not visible to the naked eye. They can only be seen through a microscope. Some organisms (viruses) are too small to be seen through an ordinary microscope. Others (e. g. parasites such as worms, lice, or scabies mites) are large enough to be seen with the naked eye or with the help of a hand lens.



How germs produce disease

When a person is attacked by the germs of a disease, various things may happen:

- If the body already has enough of the necessary antibodies against the germs, these germs are killed and the person remains well.

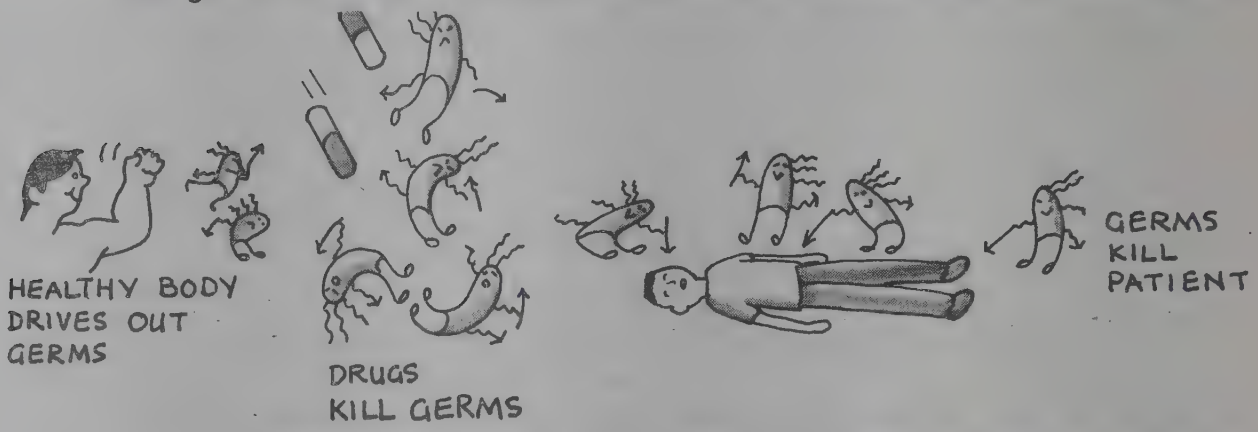


ANTIBODIES FIGHT GERMS

Antibodies are formed after immunization., Hence immunization is important in the control of infectious diseases.

- If the body has no antibodies, the germs multiply and the person becomes ill. Signs and symptoms develop which show what disease the person is suffering from. If the person is healthy and well nourished, he or she may be able to resist this invasion by the germs and overcome their ill effects without treatment.

- If the person has neither antibodies nor the strength to resist the invasion, the germs continue to multiply and produce signs of serious illness. Such



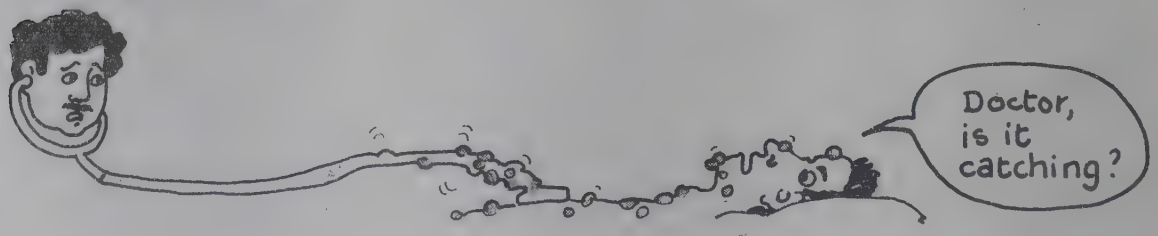
cases must be treated to help them recover from the disease as quickly as possible.

- If the invasion by the germs is very powerful and their poisons are very strong, or if the body is weak and has no resistance, the patient may die very quickly, even in a few hours. This happens in epidemics of certain diseases such as cholera or encephalitis.

Spread of infection

Diseases spread in a community in different ways. Disease germs may be found in various parts of the body, e.g. on the skin; in the bowels; in the lungs; or in the blood.

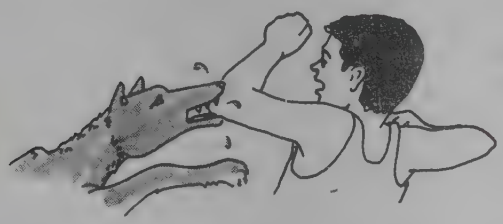
These germs may pass from the person who carries them to a healthy person in different ways. This depends on the part of the body in which the germs live. The diseases transmitted from the source of infection (sick person, animal, or soil) to a potential host (well person) are called *communicable diseases.*



1. Direct transmission:

* Germs that live on the skin or mucosa are passed on to a healthy person if he or she is in close contact with the sick person, *e.g.* by touching, kissing, or sexual intercourse. This is called *direct contact.* Examples of diseases spread this way are scabies, leprosy and syphilis.

* Germs that live in the nose, mouth, throat or lungs are spreaed as droplets on to the mouth or nose of a healthy person, e.g. by sneezing, coughing, spitting, singing or talking (over a distance of less than one meter). This is known as *direct projection* or *droplet spread.* Examples of diseases spread this way are tuberculosis, measles and meningitis.



* Germs that live in the saliva of animals are directly introduced through the skin when the animal bites a person (e.g. in rabies).

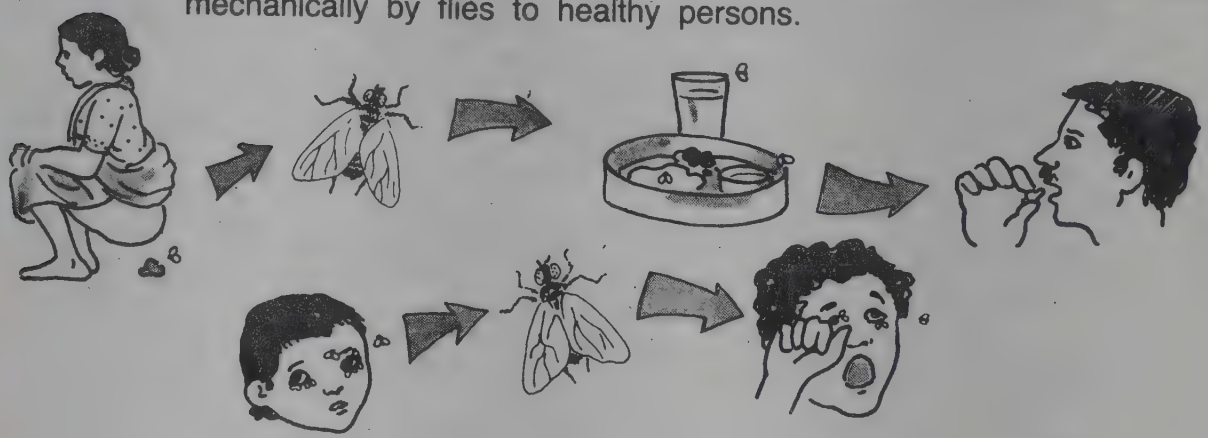
* So also, germs that live in soil are directly introduced through an injury (e.g. in tetanus).

2. Indirect transmission:

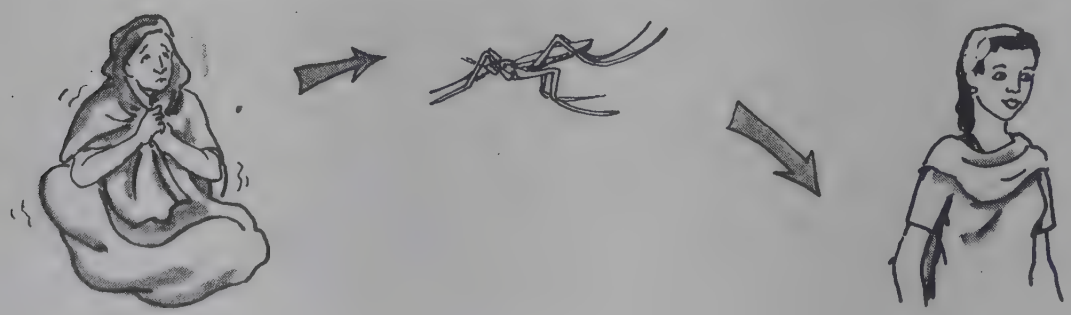
* Germs that live on the skin or mucosa are passed on to a healthy person through articles such as clothes, bedding, toys, utensils, surgical instruments or dressings (*fomites*) which have been in contact with the sick person. This is known as *indirect contact.* Examples of diseases spread this way are chickenpox, diphtheria and conjunctivitis.

* Germs from the bowel are passed with excreta (faeces) and contaminate water, food or milk (*vehicles*). If these contaminated materials are consumed by a healthy person, he or she can get the disease. Such *vehicle-borne* diseases include typhoid, dysentery and roundworms.

* Germs that are in the bowel and are passed in faeces may also be carried on the feet, body and wings of crawling or flying insects such as cockroaches and flies. This is called *mechanical vector-borne* transmission. An example of a disease spread this way is cholera. Infected material from the conjunctive of trachoma cases can also be carried mechanically by flies to healthy persons.



* Germs that are in the blood cannot escape into the air, water or soil. But if an insect bites the sick person and sucks up diseased blood, it may later inject the germs into the blood of a healthy person whom it bites. This is called *biological vector-borne* transmission. Examples of diseases spread this way are malaria, filariasis, kala azar and encephalitis.



Epidemics

In rural areas many communicable and infectious diseases occur. When an illness occurs in a community in higher numbers than usual, and when it starts from a common source, it is called an epidemic.

You must always be alert to the signs of an outbreak of an infectious disease, and must take immediate steps to control the disease and prevent it from spreading.

There are two types of signs which indicate the presence of an epidemic:

i. The occurrence of an illness in excess of normal numbers. For example, if the number of cases of diarrhoea in a community averages 20 per day and incidence suddenly increases to 60, then a diarrhoea epidemic is on.

ii. The occurrence of a disease which is normally absent from the area. For instance, if cholera normally does not occur in an area and one case of cholera occurs then a cholera epidemic is on.

Epidemicity is, therefore, relative to the usual frequency of a disease in an area.

You must be vigilant against the common communicable and infectious diseases, particularly in areas where these infections prevail. It is, therefore, necessary that you keep accurate records of the occurrence of these diseases to be able to know when their incidence increases or decreases.

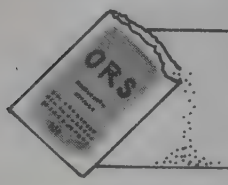
You must know the signs which indicate a disease outbreak. You must also know how the particular disease spreads so that you can take early measures to prevent the spread of the disease.

Communicable disease	Local name	Mode of spread
Measles	खसरा	• droplet spread • indirect contact (fomites) • airborne
Cholera	हैजा	• vehicle borne (food, water) • mechanical vector borne (flies)
Leprosy	कुष्ठ रोग	• direct contact • nasal discharge

Things to do

1. Make a list of the various communicable diseases that you know. Against each disease write the name (or names) by which it is known in the local language. Against each disease mention the ways in which the disease spreads.

Your list might look something like this:



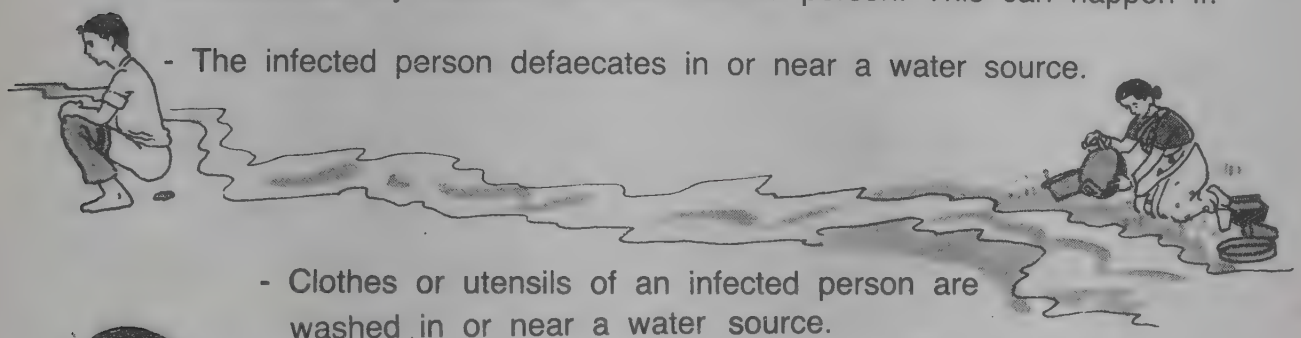
Prevent diarrhoea by preventing malnutrition.

Prevent malnutrition by preventing diarrhoea.

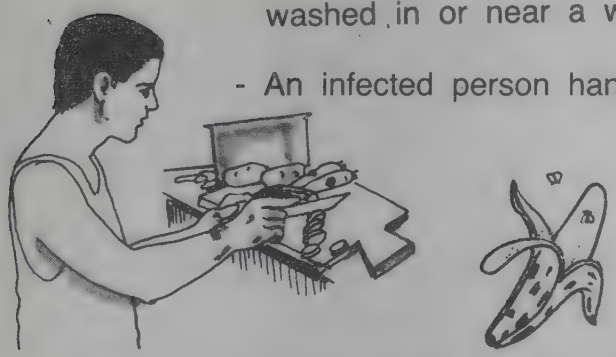
These are a group of gastro-intestinal diseases caused by many different infectious agents. The symptoms differ according to which agent is involved.

These diseases are spread by eating or drinking food, water or milk contaminated by faeces from an infected person. This can happen if:

- The infected person defaecates in or near a water source.



- Clothes or utensils of an infected person are washed in or near a water source.
- An infected person handles food without washing his or her hands.



- Insects such as flies or cockroaches sit on the stools of an infected person and carry the disease germs on their bodies, wings and legs. When these insects sit on food, the germs are passed on to the food.

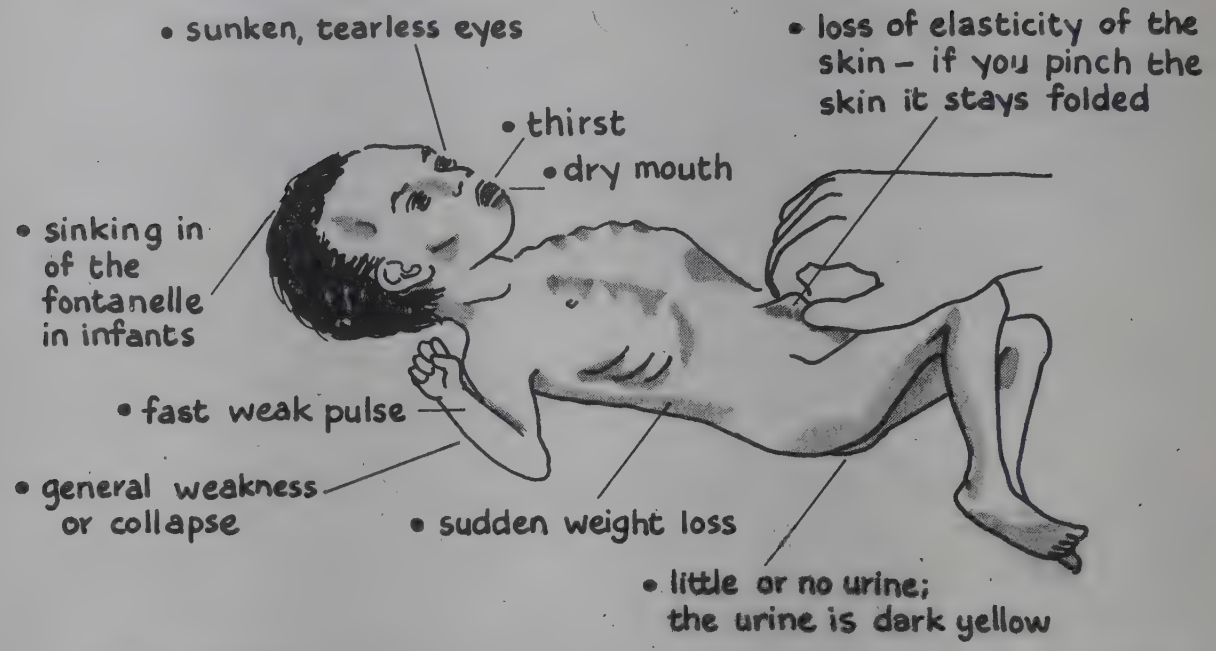
Diarrhoea

Diarrhoea or frequent stools is usually defined as having three or more loose or watery bowel movements in a day. However, this may vary from person to person. In the case of an infant, the mother's judgement is the most reliable guide. Even one watery motion could be termed diarrhoea.

Diarrhoea may be like rice water as in cholera, or may consist only of soft stools. Blood, mucus and pus may be present as in bacillary dysentery, or blood and mucus as in amoebic dysentery.

Other symptoms and signs which may be present are: nausea, vomiting, abdominal pain, or fever.

SIGNS of DEHYDRATION


• sunken, tearless eyes
• loss of elasticity of the skin – if you pinch the skin it stays folded
• thirst
• dry mouth
• sinking in of the fontanelle in infants
• fast weak pulse
• general weakness or collapse
• sudden weight loss
• little or no urine; the urine is dark yellow

When the diarrhoea is severe, dehydration occurs quickly, especially in children.

When these signs of dehydration are present, the patient is in a serious condition. If treatment is delayed, death may occur.

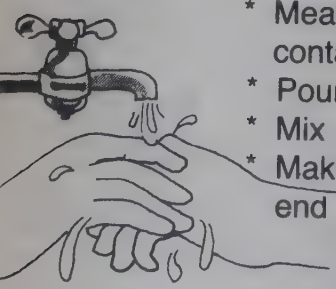
Treatment of diarrhoea

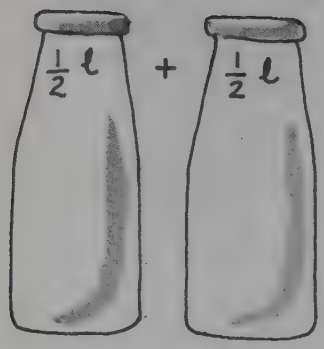
In diarrhoea the patient loses a lot of water and salt. These must be replaced quickly. *Do not wait for signs of dehydration to appear.*

A patient with diarrhoea or vomiting, like a leaky pot, loses a lot of water and salt.
This must be replaced.

Give the patient Oral Rehydration Salt (ORS) Solution:

* Wash your hands properly.
* Measure one litre of clean drinking water and pour it into a clean container.
* Pour all the powder from one pack of ORS into the water.
* Mix well until all the powder is dissolved.
* Make fresh ORS Solution every day. If any solution remains at the end of the day, throw it away.





2 standard sized milk bottles hold the equivalent of 1 litre of water.

Give the patient ORS Solution in small amounts at frequent intervals. Adults: small quantities throughout the day using a cup and spoon. Children: 25 to 30 ml (5 to 6 teaspoons) at 10 to 15 minute intervals.

Show mothers how to feed ORS Solution to their children.

- Give the patient plenty of other 'home-available-fluids' (HAF) to drink, e.g. rice water to which salt and lemon juice are added, water in which dal is boiled, green coconut water, lemon sherbat containing sugar and salt to taste, weak tea, lassi, etc. Infants should continue to take breastfeeds.

- Continue feeding a patient with diarrhoea. Give light food such as khichiri, rice kanji, ripe banana or apple.

Give a child ORS solution as soon as it starts having diarrhoea.

- In most cases diarrhoea is self-limiting. Therefore, do not prescribe anti-diarrhoeal drugs in children. Antibiotics should only be given in cases of cholera or dysentery under the supervision of the MO PHC.

- Refer the patient to the PHC or hospital if the patient is severaly ill, i.e.

* the stools are like rice water (cholera suspected);
* the stools are greenish with blood, pus or mucus (dysentery suspected);
* there is severe vomiting;
* there is prolonged high fever;
* the pulse is rapid and weak;
* the skin is cold and clammy;
* the urine is scanty and dark coloured;
* the patient is drowsy or unconscious.

Continue giving ORS Solution to the patient on the way to the hospital.

Disinfect the vehicle which takes the patient to the hospital.

Infectious Hepatitis

Infectious hepatitis or jaundice is caused by a virus which is spread through contaminated food or water.

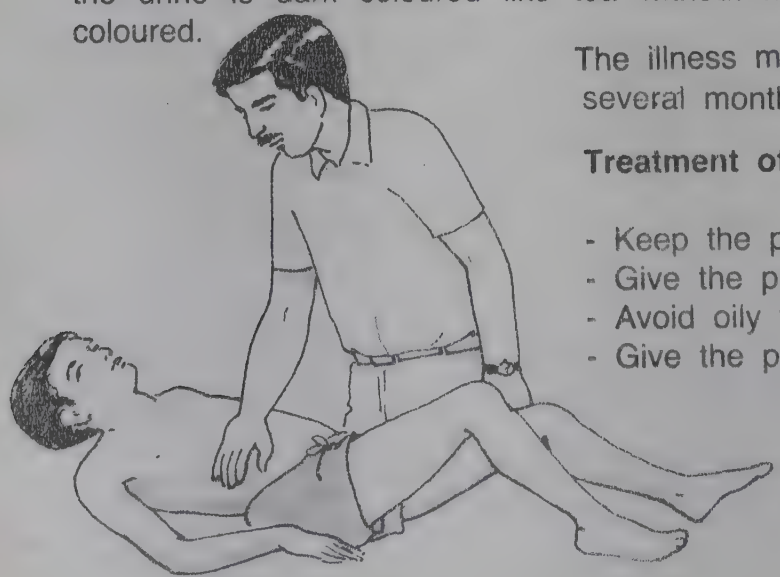
Infectious hepatitis may occur at any age but is most common in older children and adults. If the drinking water is contaminated or if contaminated food is eaten by many people, there may be several cases of jaundice in a particular area at one time.

The disease begins with fever, loss of appetite, nausea, vomiting, headache, pain and tenderness over the liver and a general feeling of weakness. After a few days, jaundice develops, i.e. the eyes look yellow, the urine is dark coloured like tea without milk, and the stools are light coloured.

The illness may last for several weeks or several months.

Treatment of jaundice

- Keep the patient at rest.
- Give the patient a nutritious diet.
- Avoid oily food.
- Give the patient multivitamin tablets.



In jaundice the liver is enlarged and tender

- If the patient is vomiting, give plenty of 'home-available-fluids' and ORS Solution.

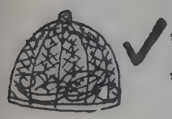
- Transfer the patient to the PHC or hospital if:
  * the patient is seriously ill, i.e. high fever, severe vomiting, or drowsiness;
  * the patient is a pregnant woman.

In an outbreak of gastro-intestinal infection, advise the community as follows:

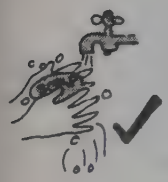
* Use only protected, pure water for drinking and cooking.
* Disinfect wells with bleaching powder.
* Boil water before drinking.

Note: Chlorination will not kill the hepatitis virus. Water must be boiled.

* Store water in clean, covered containers and use clean vessels for drawing water.



* Eat freshly cooked food.
* Protect food from flies and other insects.
* Ensure that all stools and vomit, especially from cases of diarrhoea, are disposed of in a latrine or by burying.



* Wash clothes soiled by the patient's faeces or vomit with soap and water. Soak them in antiseptic or boil them if possible. Dry them in the hot sun. Do not throw the water used for washing soiled clothes into or near the water source.
* Wash hands thoroughly with soap and water and dry them after defaecation, before preparing, serving or eating food, or after attending to a patient with diarrhoea, dysentery or jaundice.
* Give patients with diarrhoea or vomiting ORS Solution and plenty of other 'home-available-fluids' to drink.
* If a cholera epidemic occurs in an area, people in the neighbouring areas should be protected by immunization.

Note: Inform the MO PHC if there are several cases of diarrhoea, dysentery or jaundice in your area. It may be necessary to set up treatment camps in the village where cases can be given treatment instead of sending them to the PHC or hospital.

Things to do

1. Practise preparing ORS Solution. Show mothers how to feed it to their children.

2. Make a list of all the 'home-available fluids' which mothers in your area can easily prepare. Tell mothers to feed these to their children if they have diarrhoea or vomiting.

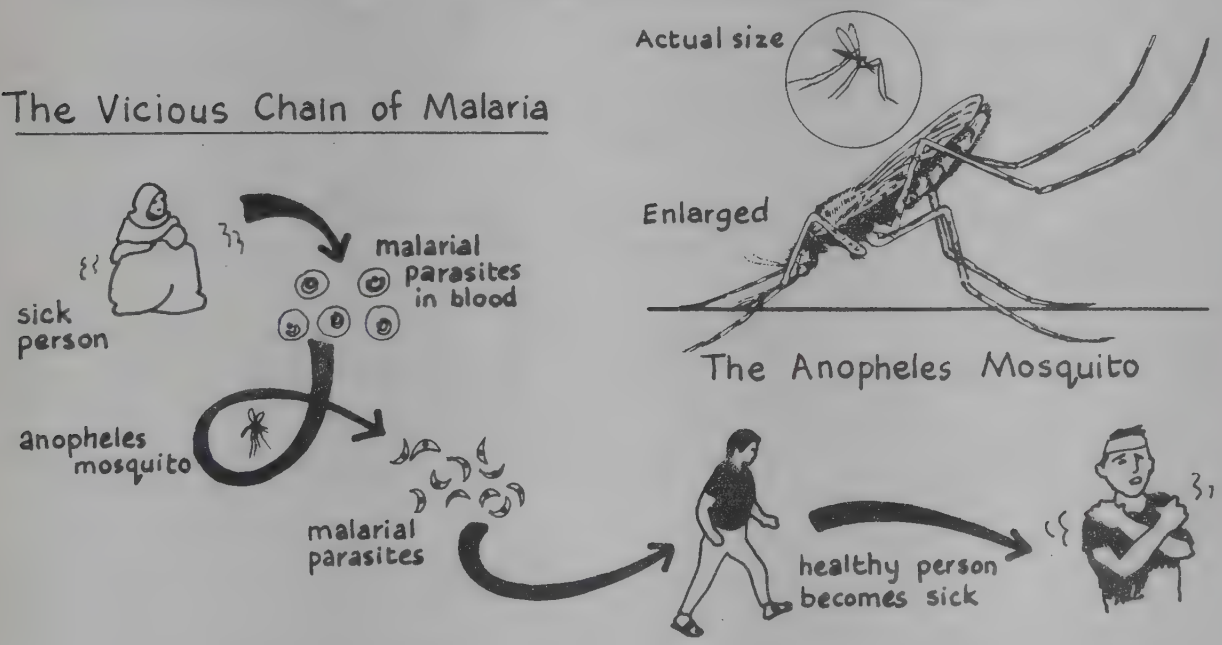
3. Go through the Subcentre records for the past year. How many cases of gastro-intestinal infections (diarrhoea, dysentery, cholera, gastroenteritis, hepatitis) were recorded? Which age groups were mainly affected? In which months did the majority of cases occur?

4. Collect or prepare visual aids on the prevention and control of gastrointestinal infections. Use these in your health education programmes in the community.

Fever is a sign of illness, and not a disease in itself.

Malaria

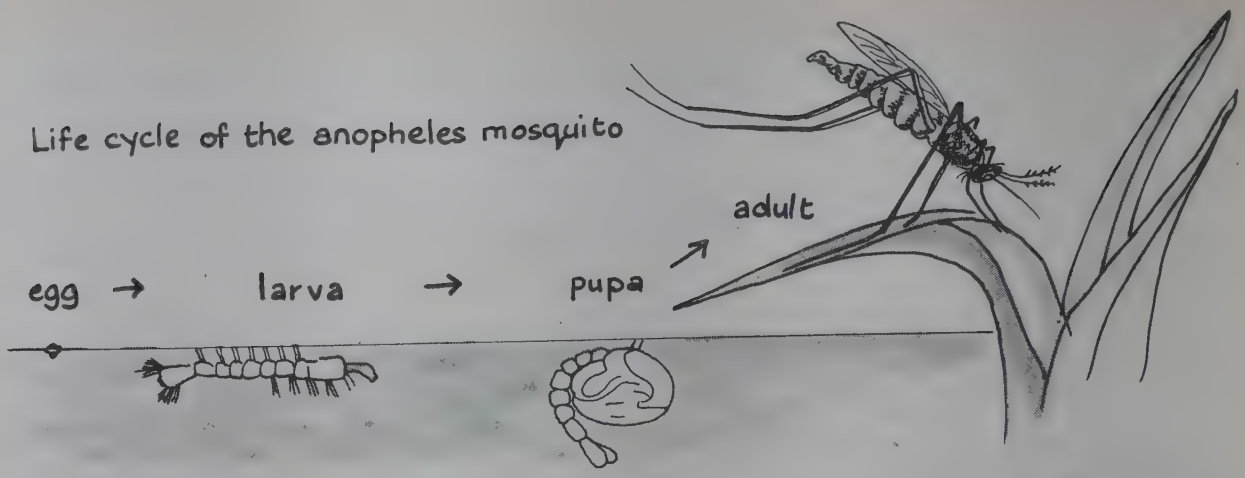
Malaria is an infection of the blood in which there are bouts of high fever and shivering. It is caused by a parasite (Plasmodium) which develops in the liver and blood. The disease is spread through the female Anopheles mosquito. Before the mosquito can lay its eggs, it must have a blood meal. If it bites a person with malaria, it sucks up the blood containing the malaria parasites. In the next 10 to 24 days these parasites develop in the mosquito's body. If the mosquito now bites a healthy person, the parasites are injected into the healthy person's blood. After 8 to 12 days that person gets malaria.



In India there are three main types of malaria parasite: P. falciparum, P. vivax and P. malariae. The first is the most dangerous and can cause cerebral malaria and death.

If we know the habits of the Anopheles mosquito, it can help us to plan the prevention and control of malaria.

- The mosquito bites at night.
- It may rest inside or outside the houses.
- It rests with its body sloping forwards inclined at an angle of 45°, as if resting on its head.
- It breeds freely in clean, stagnant water and slow-moving streams.



- It develops from egg to larva to pupa to adult in water. This may take 10 to 12 days.
- It flies short distances (1 to 3 km) but the wind may carry it further.

The signs and symptoms of malaria are as follows:

Premonitory stage lasting a few hours)	i. feeling of general discomfort ii. headache
Cold stage (lasting ¼ to 1½ hours)	i. headache gradually becomes severe ii. severe aches and pains in the body iii. nausea iv. shivering (rigors) starting with a feeling of cold (chill); the teeth chatter and the patient covers himself with blankets
Hot stage lasting ½ to 5 hours)	i. fever rising rapidly to 380°c— 41°c (102°c — 106°F) ii. very hot feeling iii. severe headache iv. face, hands and skin flushed v. rapid respiration
Sweating stage	i. profuse sweating ii. fever falls and comes to normal iii. weakness iv. comfortable feeling v. feels better and goes to sleep
Symptom-free interval	Depending on the type of parasite, the signs and symptoms listed above recur - every alternate day (P. vivax and P. falciparum) - every fourth day (P. malariae) if the patient does not receive treatment.

Stages of malaria

However, sometimes a patient does not have these typical signs and symptoms and appears to have some other disease, e.g. influenza. Hence, all cases of fever must have the blood tested and be given presumptive treatment for malaria.

In chronic malaria the spleen is often enlarged and the patient has anaemia.

In some cases of P. falciparum infection the brain may be affected (cerebral malaria). This causes delirium, drowsiness and often death, unless prompt treatment is given.

The highest number of deaths from malaria are in infants, young children, and pregnant women.

A child with chronic malaria (shaded area indicates size and position of enlarged spleen)

You should visit each household in your area every fortnight. If you find a case with fever, proceed as follows:

1. Find out how the signs and symptoms started and progressed.
2. Take the patient's temperature.
3. Look for a rash or other signs which exclude malaria.

4. Prepare thick and thin blood films. Send the slides, along with the necessary forms, to the PHC for examination for malaria parasites.

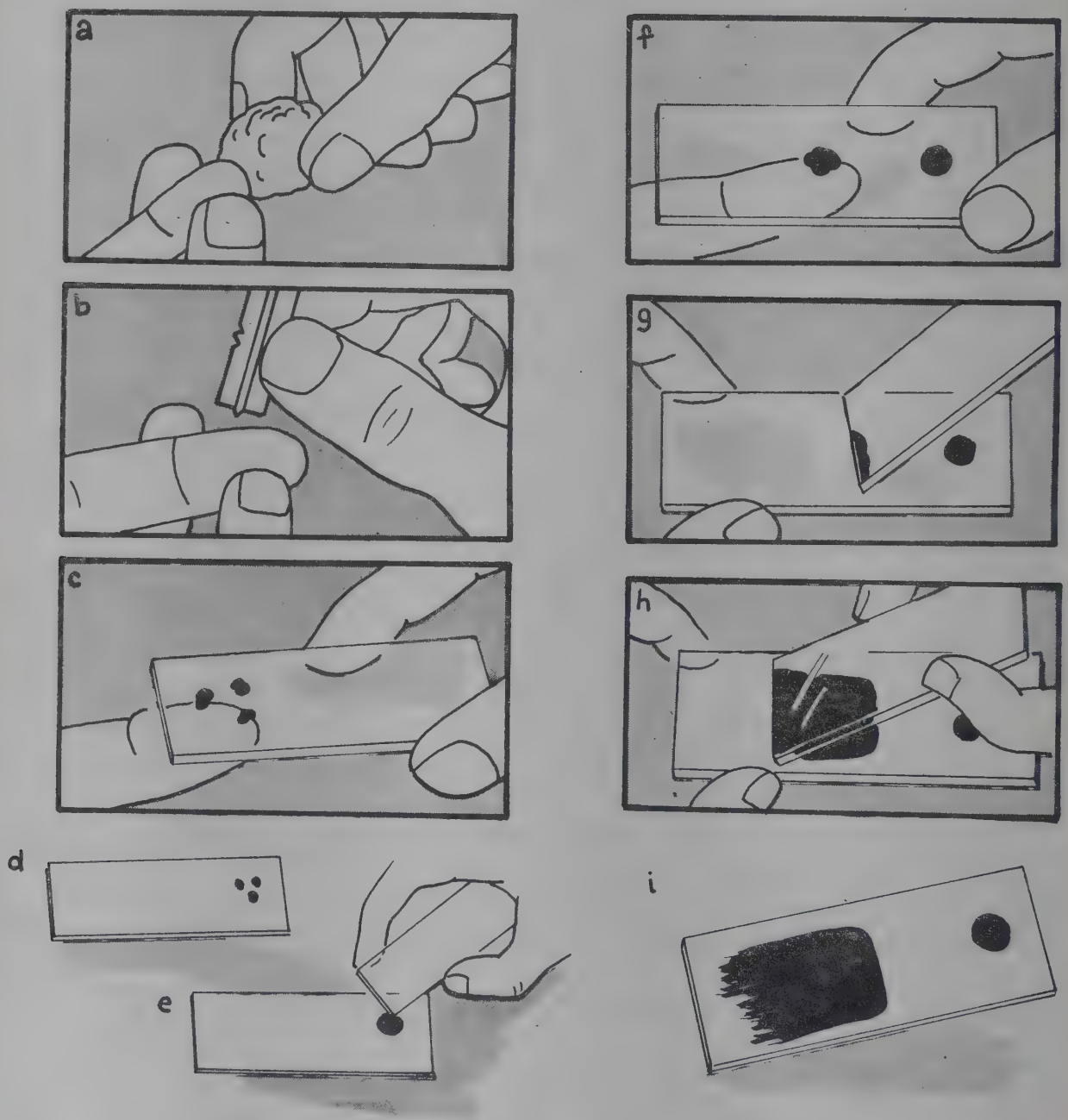
5. Give the patient paracetamol tablets.

6. Give the patient presumptive treatment for malaria. See that the patient swallows the tablets.

7. If the report of the blood films is positive for malaria, give the patient radical treatment for malaria.

Preparing blood films

In adults capillary blood is taken from the left ring finger. In babies it is taken from the heel or big toe.



Equipment needed:

- Hagedorn needle or lancet

- Cotton wool

- Spirit

-Clean glass slides

Procedure:

i. Hold the finger to be pricked.
ii. Clean the tip of the finger with spirit.
iii. Dry with another piece of cotton wool.
iv. Prick the finger at the side of the tip with a Hagedorn needle or sterile lancet.
v. Allow the blood to flow freely.
vi. Discard the first drop of blood.
vii. Collect the next blood drops for examination.

viii. **Thick films**

- Put three drops of blood on the right hand quarter of the slide.
- With the corner of another clean slide spread the blood to an even thickness in a round form of about I cm in diamter.

Thin films

- Put a drop of blood on the middle of the same slide.
- Place the second slide at an angle of 45° to the first slide and let the blood spread along it.
- Push the spreader slide quickly from the centre to the left side of the slide, drawing the blood behind it.

ix. Leave the film to dry. Do not blow on it or shake the slide. Protect it from flies and dust.
x. When the slide has dried, mark the patient's number on the end of the thin film using a lead pencil.

Treatment of malaria

Treatment of malaria is given in the form of presumptive and radical treatment. Presumptive treatment is given to *all* fever cases whether or not they have malaria. This will reduce the clinical symptoms and signs. Radical treatment is given to every case whose blood slide is found positive for malaria. This will treat the disease, prevent a relapse, and prevent spread of infection to other persons.

Presumptive treatment for malaria

Age group	*Dose of chloroquine phosphate* (150 mg base)
0 - 1 year	75 mg (½ tablet)
>1 - 4 years	150 mg (1 tablet)
>4 - 8 years	300 mg (2 tablets)
>8 - 14 years	450 mg (3 tablets)
>14 years	600 mg (4 tablets)

The patient should take the tablets after food.

Note: In certain parts of the country where P. falciparum is resistant to chloroquine, another drug, amodiaquine is given. The dosage is the same as for chloroquine.

Radical treatment for malaria

1. **P. falciparum infection**

In areas where P. falciparum is sensitive to chloroquine, the following treatment will be given:

Age group	**Chloroquine phosphate**	+ **Primaquine***
0 - 1 year	75 mg	nil
> 1 - 4 years	150 mg	7.5 mg
> 4 - 8 years	300 mg	15.0 mg
> 8 - 14 years	450 mg	30.0 mg
> 14 - years	600 mg	45.0 mg

In areas where P. falciparum is resistant to chloroquine, the following treatment will be given.

---

*Given as a single dose

Age group	Sulphalene/ Sulphadoxine (500 mg) + Pyrimethamine (25 mg) : One tablet	+ Primaquine*
0 - 1 year	nil	nil
> 1 - 4 years	½ tablet	7.5 mg
> 4 - 8 years	1 tablet	15.0 mg
> 8 - 14 years	1½ tablets	30.0 mg
> 14 years	2 tablets	45.0 mg

2. P. vivax and P. malaria infection (in all areas)

Age group	Chloroquine phosphate (only on first day)	Primaquine (for 5 consecutive days)
0 - 1 year	75 mg	nil
> 1 - 4 years	150 mg	2.5 mg
> 4 - 8 years	300 mg	5.0 mg
> 8 - 14 years	450 mg	10.0 mg
> 14 years	600 mg	15.0 mg

Precautions:

i. Primaquine should never be given on an empty stomach otherwise it can cause cramps, nausea and Vomiting.

ii. Before giving the daily dose of primaquine, check for the presence of cyanosis (bluish coloration of gums and lips and later finger nails) or smoky pink coloured urine.
If these signs are present, stop the drug immediately. Keep the patient at rest in bed and inform the MO PHC.

iii. Primaquine should **never** be given to infants (below 1 year) or to pregnant women.

When malaria cases, confirmed by a positive blood smear, occur in large numbers, a malaria epidemic is on. In order to reduce the number of deaths from the disease, measures must be taken to prevent malaria from spreading.

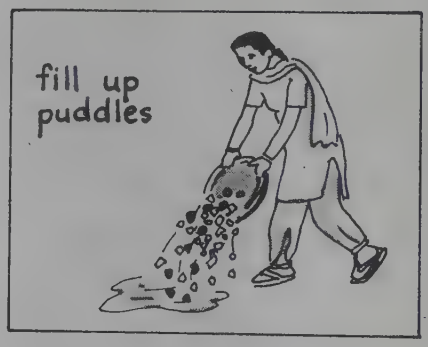
*Given as a single dose

Advise the community as follows:

*Allow the spraying squad to spray the inside of the house, including the puja room, kitchen and cattle shed, with insecticide. This will reduce the adult mosquito population.

The householder should prepare the house for spraying by:
- Removing all pictures and wall fixtures.
- Covering all furniture with sheets.
- Putting all food and fodder inside a cupboard or keeping it well covered
- Taking all pets, poultry and livestock outside the house.

After spraying, the householder should ensure that:
- All sheets used for covering furniture are washed.
- The walls are not dusted, washed or plastered for at least 10 to 12 weeks after spraying.

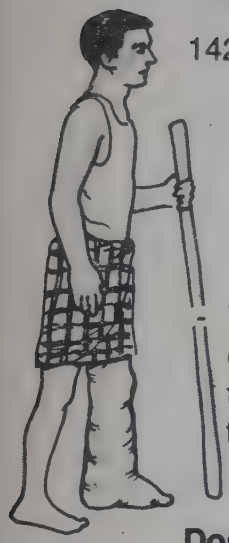


* Larviciding operations can be done in urban areas and, if feasible, in rural areas. This will also reduce the mosquito population.
* Fill up water collections around houses. This will remove possible breeding places.
* Protect yourself from mosquito bites by using a mosquito net and applying a mosquito repellant, e.g. mustard oil, on the body.
* If anyone in the area has fever with rigors, inform the HWM, HWF or HG. They will make blood films and give the necessary treatment.

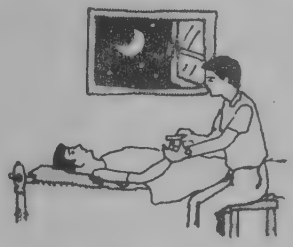
FILARIASIS

This is an infection of the blood and lymphatic system by parasitic worms (microfilariae). These worms appear in the blood usually at night. They are spread from sick to a healthy person through the bite of the Culex mosquito.

In the early stages of the disease, the patient has fever with chills and rigors (shivering). At a later stage the parasites invade the lymphatic system and cause painful swellings on the skin of the arms and legs. If the patient is not treated, permanent swellings (elephantiasis) appear especially on the lower limbs and scrotum.



The microfilariae can be detected by making a thick blood film (See page 142/). This is done between 10 pm and 4 am



Treatment

The specific drug for treatment of filariasis is diethylcarbamazine (DEC), e.g. hetrazan, unicarbazan, and banocide. As these drugs do not destroy the adult female worms, they must be repeated at specific intervals so that fresh crops of microfilaria larvae are destroyed.

Dosage: 6 mg DEC per kg body weight daily for 12 doses (6 doses in a week for 2 weeks)

Age group	**Single dose of DEC**
18 years and above	300 mg
12 - 17 years	225 mg
6 - 11 years	150 mg
2 - 5 years	75 mg
1 year	30 mg

- Give the patient acetyl salicylic acid tablets or paracetamol to relieve pain and fever.
- Tie an elastic bandage on the legs. This will help to prevent permanent swelling of the legs. Remove the bandage at night.

Advise the community as follows:

* If a person has fever with rigors, he should inform the health worker or HG immediately. In areas where filariasis is common, the health worker will take a night blood smear.
* If the smear is found positive for filariasis, the patient should take complete treatment. Permanent defects can prevent by early detection and treatment.
* prevent mosquito bites by using a mosquito net and applying a mosquito repellant.
* Take all measures for preventing mosquito breeding and for reducing the mosquito population as described under malaria (See page 216)

KALA AZAR

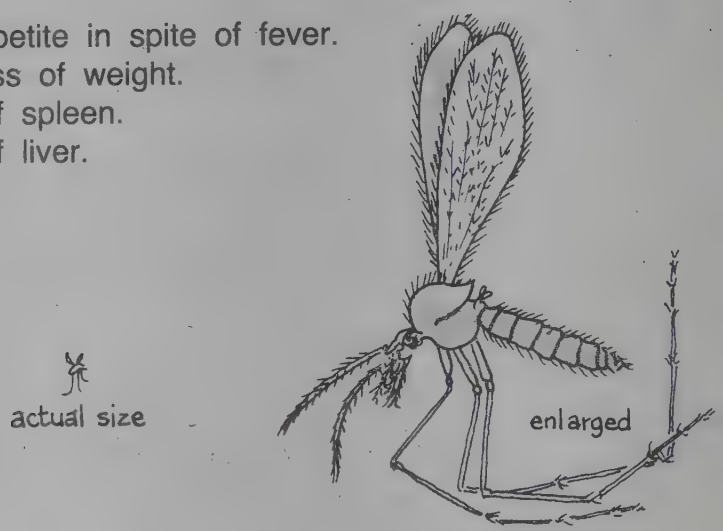
Kala azar is caused by a parasite which is transmitted by the female sandfly.

Sandflies live in dark, damp places. They lay their eggs in cracks and crevices of buildings, tree holes and burrows of animals where there is high humidity and organic matter. The eggs develop into larvae, pupae and adults.

When a sandfly bites a patient with kala azar, the parasites enter the stomach of the sandfly along with the blood meal. The parasites multiply in the stomach . Within 5 to 8 days the parasites move towards the mouth parts of the sandfly. When this sandfly bites a healthy person, the parasites enter the body.

After a few months to a year the person has the following signs and symptoms:

- High fever.
- No loss of appetite in spite of fever.
- Progressive loss of weight.
- Enlargement of spleen.
- Enlargement of liver.
- Anaemia.



FEMALE SANDFLY

During your fortnightly visits, you should make a note of each and every case of fever of longer duration not responding to antimalarial drugs. Report the cases to the MO PHC. If a case is diagnosed as kala azar, you should ensure that the patient takes complete treatment as advised by the MO.

Advise the community as follows:

* If a person has long continued, irregular fever and progressive loss of weight, he/she should report to the MO PHC.

* If a person is found to have kala azar, he/she should take complete treatment as advised by the MO.

* Allow the insecticidal spraying squad to spray the houses and cattlesheds, especially all cracks and crevices, with DDT. This will destroy sandflies which carry the parasites of kala azar.

ENCEPHALITIS

Encephalitis or fever with stupor or coma is a serious disease. It is caused by a virus which is spread from birds and small animals to man through the bite of the Culex mosquito.

The onset is sudden with
- Sudden high fever.
- Headache.
- Stiff neck.
- Drowsiness.
- Delirium - the patient does not know what he is doing.
- Stiffness and tremors of the muscles.
- The patient goes into a coma or unconsciousness.
- More than half of these cases may die.

If any person in your area develops fever with stupor, coma, or unconsciousness.
- Send the patient immediately to the PHC or hospital.
- Report the case immediately to the MO PHC. If several such cases occur, it is likely to be an epidemic of encephalitis.

Advise the community as follows:

* Cooperate with the spraying squad.
* Fill up any water collections and prevent mosquito breeding.
* Protect yourself from mosquito bites.

Things to do

Do you have any cases of filariasis in your area? If so, what action is being taken to prevent and control the disease? Discuss this with your supervisor and the community leaders.

1. Winged Scourge

Amir's house has a lot of stagnant water around it. There are many mosquitoes about.

One day Amir gets high fever with shivering. He has malaria.

At night the mosquitoes bite Amir.

Later the mosquitoes bite Amir's neighbour, Akbar.

Akbar also gets malaria.

Early detection and regular treatment of tuberculosis and leprosy lead to complete cure.

TUBERCULOSIS (TB)

Tuberculosis is caused by infection with tubercle bacilli. The disease spreads from person to person. It can occur in men or women, young or old, rich or poor. However, it is more common in those who are weak and malnourished, and those who live in overcrowded houses and unhygienic conditions.

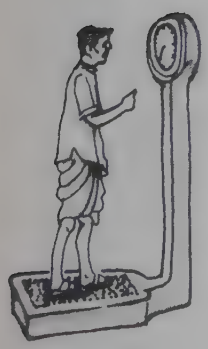
The disease can occur in any part of the body, e.g. the lungs, bones, joints, intestines, meninges or lymph glands. it is most common in the lungs.

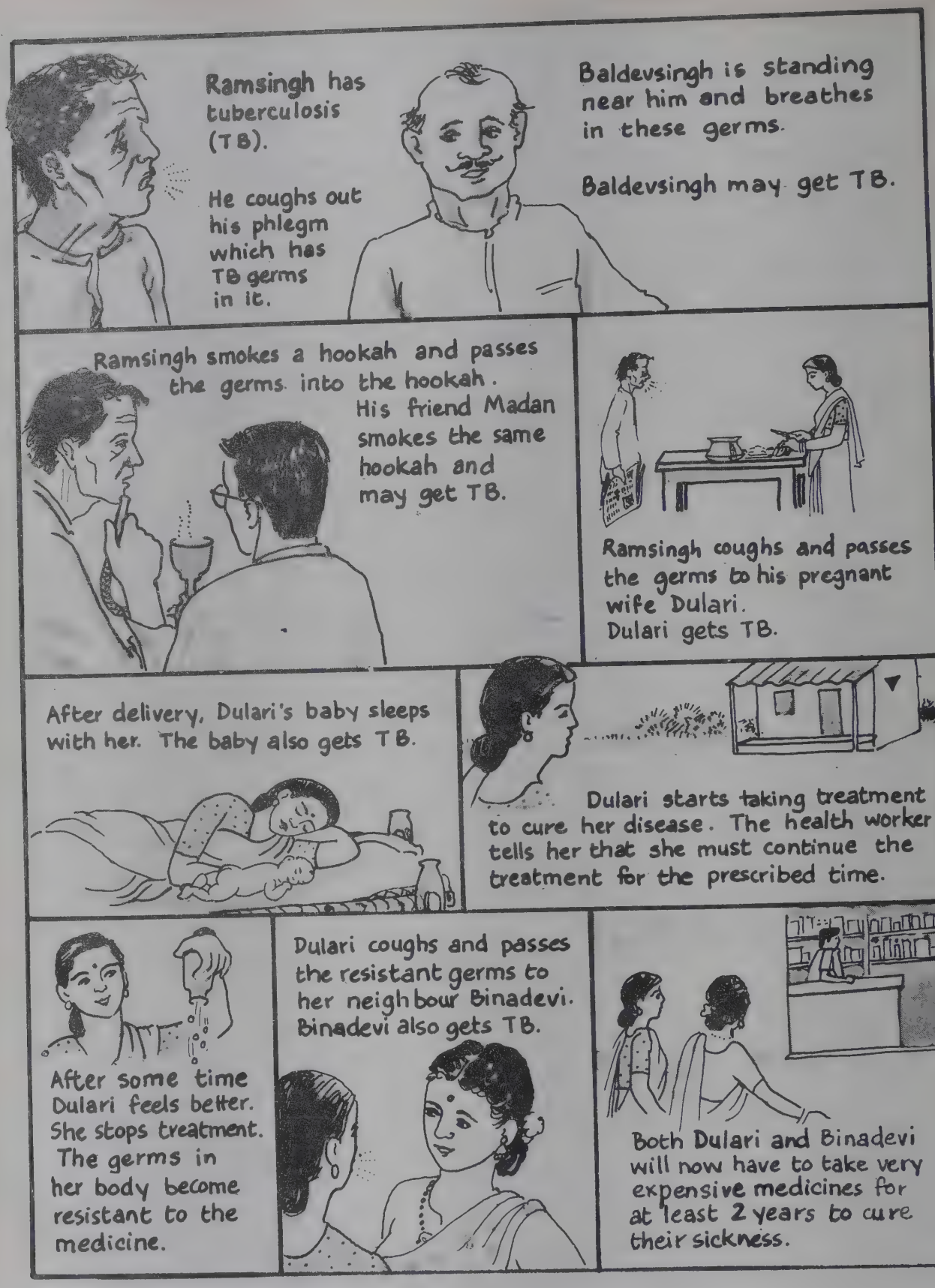
When a person suffering from TB of the lungs coughs or sneezes or spits, droplets of sputum go into the air in the form of spray. These droplets contain TB bacilli. Sputum which dries on the floor mixes with dust particles. When a healthy person breathes in these droplets or dust particles, the bacilli go into the lungs and grow there. In most cases the body is able to fight the TB germs so that they do not cause damage or disease in the body. However, sometimes, especially if the person's resistance is low, the bacilli produce inflammation of the lungs which spreads and destroys the lung tissue. This results in cavities filled with pus. This pus is coughed up as sputum or phlegm and contains the TB bacilli. Sometimes the cavity bleeds and blood appears in the sputum. From the lungs the TB bacilli may enter the blood and pass to other parts of the body where they can cause tuberculosis.

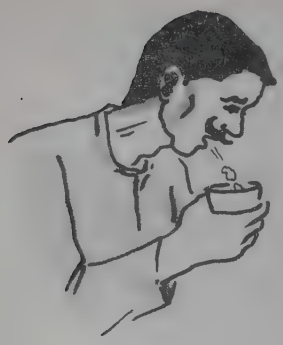
The common signs and symptoms of tuberculosis of the lung are:

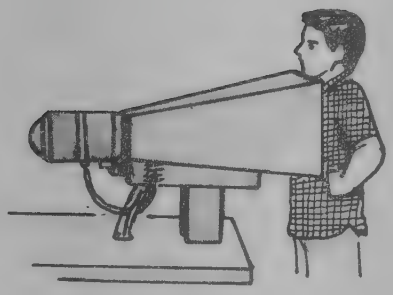
Early:
- A feeling of tiredness.
- Loss of appetite.
- Low fever especially in the evening.
- Loss of weight.

Later:
- Persistent cough.
- Sputum.
- Sometimes the patient may cough up blood.
- Weakness.
- Profuse sweating at night.
- Pain in the chest.




Ramsingh has tuberculosis (TB).
He coughs out his phlegm which has TB germs in it.
Baldevsingh is standing near him and breathes in these germs.
Baldevsingh may get TB.
Ramsingh smokes a hookah and passes the germs into the hookah.
His friend Madan smokes the same hookah and may get TB.
Ramsingh coughs and passes the germs to his pregnant wife Dulari.
Dulari gets TB.
After delivery, Dulari's baby sleeps with her. The baby also gets TB.
Dulari starts taking treatment to cure her disease. The health worker tells her that she must continue the treatment for the prescribed time.
After some time Dulari feels better. She stops treatment. The germs in her body become resistant to the medicine.
Dulari coughs and passes the resistant germs to her neighbour Binadevi. Binadevi also gets TB.
Both Dulari and Binadevi will now have to take very expensive medicines for at least 2 years to cure their sickness.



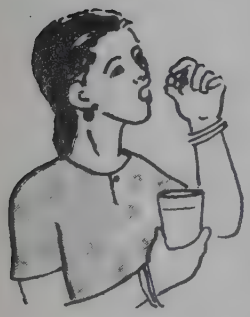


Tuberculosis of the lungs can be diagnosed by:

* Examining the sputum under the microscope for the presence of TB germs.

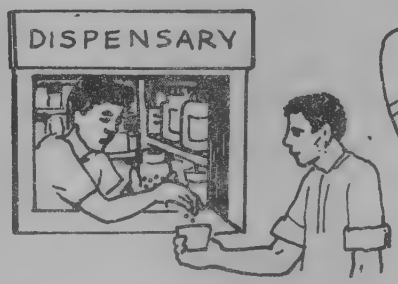
  Sometimes a single sputum examination may not show the germs and repeated sputum examinations have to be done.
* Taking a x-ray of the lungs.

If the person is found to be sputum positive, i.e. TB bacilli are found in the sputum, or the x-ray shows tuberculosis, he/she can be treated and completely cured. There are potent and effective drugs available for treating tuberculosis. These drugs must be taken regularly without a break, in proper doses, and for as long as the doctor advises. Most cases of TB can be treated at home. Only those who are seriously ill or have complications need admission to a hospital.



Take your medicines as advised by the doctor.

Collect fresh supplies regularly



Children can be protected from tuberculosis by giving them BCG vaccination. this should be given as early in life as possible, i.e. between 6 weeks and 9 months of age.

On your visits to your area, you should do the following:

* Look for persons, especially those over 15 years of the age who have a cough, with or without expectoration, lasting for more than two weeks, or spitting of blood.

* Refer all such cases to the MO PHC for the necessary examination. Make a note of these cases in your diary.

* On your next visit to the area, find out whether these persons were examined and what was the diagnosis. Motivate those who have not yet attended the PHC to do so.

* Obtain from the PHC a list of all cases in your area diagnosed as suffering from tuberculosis. On your home visits check that all these cases are taking their treatment regularly in proper doses. If any patient has 'bad' reactions to the treatment, advise him/her to report to the PHC immediately.

* Encourage defaulters to take regular treatment and inform the HAM about these cases.

* Give each HG in your area a list of TB patients in his/her village.

The HG can help to ensure that these patients take their treatment regularly.

* If any person in a household has tuberculosis, refer close contacts, i.e. other members of the household, to the PHC for a check-up.

* With the help of the HWF, protect all infants in your Subcentre area by giving them BCG vaccination (See Chapter 13).

* Educate the community about the prevention and control of tuberculosis.

Advise the community as follows:

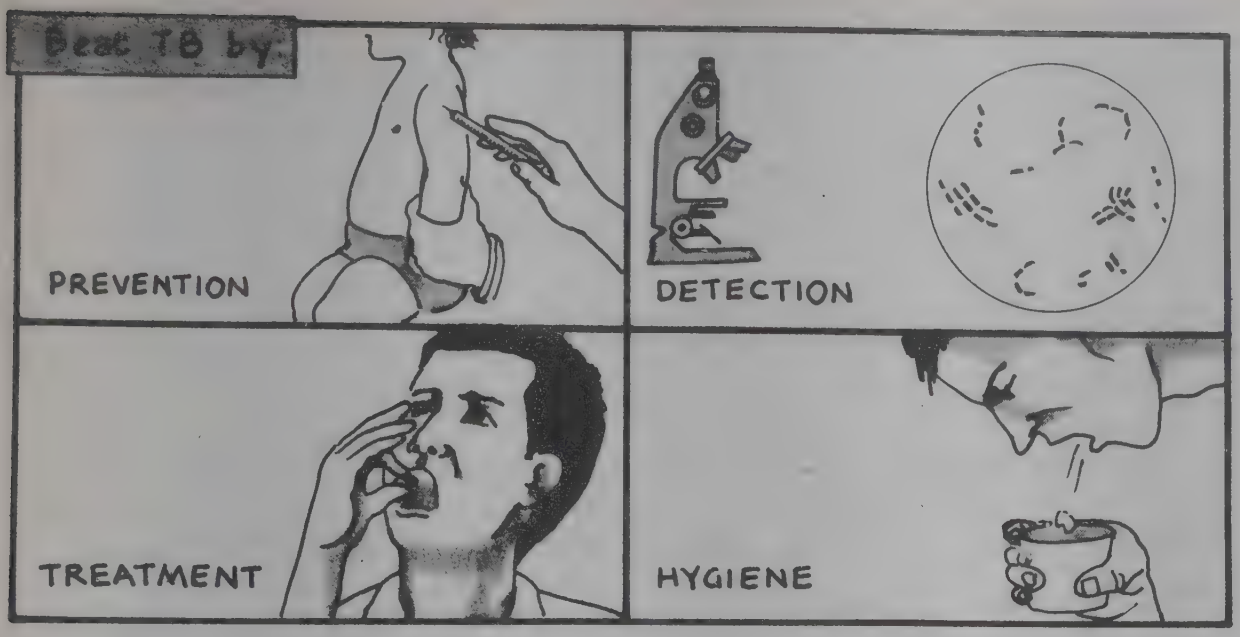
* Tuberculosis can be spread by coughing or sneezing on to others, indiscriminate spitting, or using a common hookah. Always cover the mouth while coughing or sneezing. Do not spit on the floor or walls. Do not use a common hookah.

* Anyone who has a cough for more than two weeks with sputum or with spitting of blood should inform the health worker or visit the PHC.

* Tuberculosis of the lungs can be detected by sputum examination and by X-ray of the chest.

* Tuberculosis can be completely cured by taking regular continuous treatment with drugs in proper doses. If a patient does not follow the doctor's instructions and stops taking the drugs, or takes them haphazardly, or changes the doses, he can have serious complications.

* TB patients can be treated at home. Only those who are seriously ill need admission to hospital.

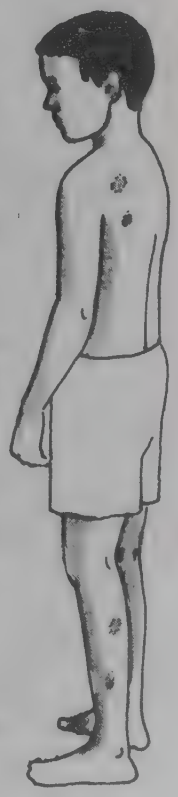


* TB patients should spit into a sputum cup. the sputum should be burnt and the cup washed and boiled every day.

* Every infant should be given BCG vaccination. This will protect it from tuberculosis.

LEPROSY

Leprosy is chronic communicable disease which is caused by leprosy bacilli. These look very much like TB bacilli.



The disease spreads to a healthy person through close contact with an infectious case over a long period. It also spreads through the discharges of the nose and throat of an infectious patient.

All cases of leprosy are not infectious. In India only about 20 per cent of all leprosy cases are infectious.

The disease affects the superficial parts of the body, viz. skin, mucous membranes, eyes, nose, ears and superficial nerves. The following changes are seen in the skin and nerves:

* Light coloured or coppery red patches on the skin. These may be single or multiple. They may be present on one or both sides of the body. The skin patches are painless and do not itch.

* Thickening of the skin with a shiny appearance.

* Loss of sensation to touch, temperature and pain especially over the skin patches.

* Loss of sweating and/or loss of hair over the skin lesion, or loss of eyebrows.

* Thickening of the superficial nerves especially the ulnar (on the inner side of the elbow), the lateral popliteal (on the upper outer part of the leg), and the great auricular (below and behind the ear).

* Nodules in the skin especially of the nose, chin and ears

* Thickening of the ear lobes.

* Recurring wounds and uclers which do not heal.

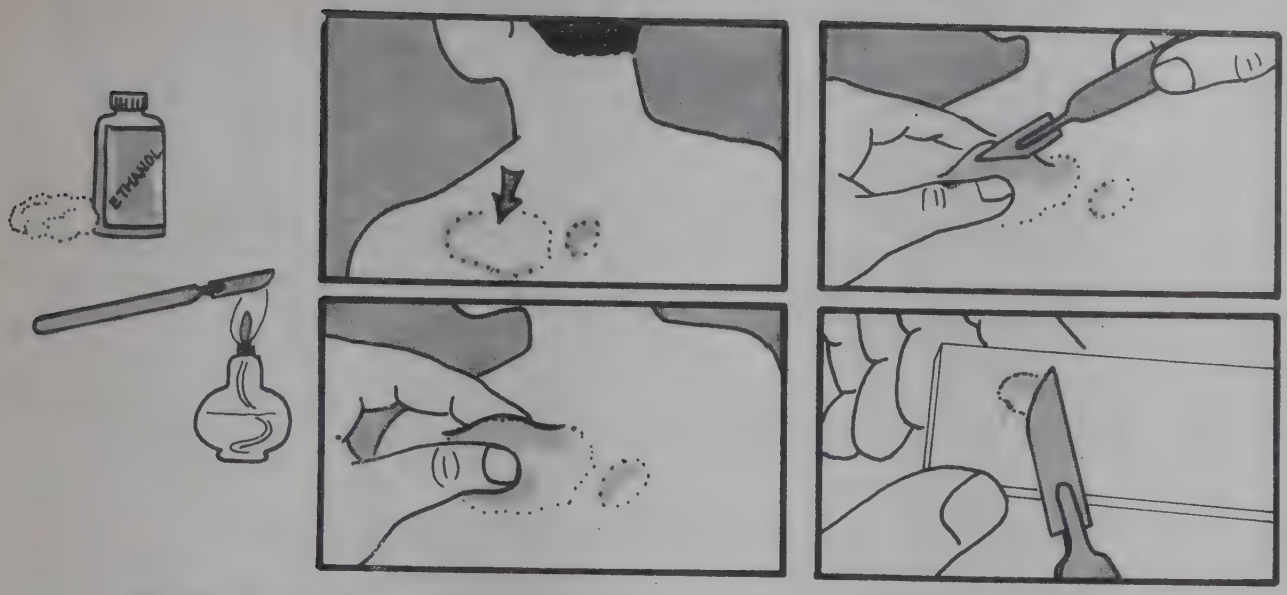
If you find a case showing any of these skin changes:
- Test for loss of sensation.
- Take a minimum of three skin smears of which two should be from active lesions.

Testing for loss of sensation

i. **Touch:** Fold a stiff paper in triangular form or use a feather. Touch the skin patch alternately with normal skin with the point of the paper or the tip of the feather. Ask the person to close his eyes and show where he feels the touch.

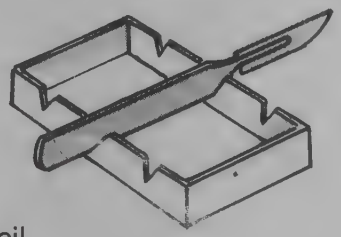
ii. **Temperature:** Take two test tubes, one containing hot water and one containing cold water. Touch the patch and normal skin alternately with the hot or the cold tube. Ask the person to close his eyes and say whether he feels any difference in temprature over the patch and normal skin.

iii. **Pain:** Gently prick the patch alternately with normal skin with a clean pin or needle. Ask the person to close his eyes and show when and where he feels the pin prick.



Taking skin smears

Smears are taken from the ear lobe, margin of the patches, cheek, chin, chest, back and buttock.



Equipment needed:

- Scalpel (sterilized)
- Spirit lamp, spirit and matches
- Clean slides marked with a glass marking pencil
- Stand for scalpel
- Sterile gauze
- Sterile cotton wool
- Ethanol
- Tincture benzoin

Proceed as follow:

i. Clean the area with gauze swab moistened with ethanol.

ii. Flame the scalpel.

iii. Pinch the site hard betweent finger and thumb to stop the flow of blood to the area.

iv. Make a superficial cut lengthwise at the edge of the lesion about 5 mm long and 2 to 3 mm deep. Do not draw blood. If blood appears, wipe it dry with dry gauze and pinch the skin harder.

v. Still squeezing the skin, scrape the bottom of the cut with the point and blade of the scalpel. Collect on the scalpel the colourless or pinkish material from the lesion.

vi. With the flat of the blade spread the material evenly in a circular motion over an area 5 to 7 mm in diameter on one end of the slide. Five to six smears from different sites from the same patient can be put on a single slide. Mark the slide with the patient's number.

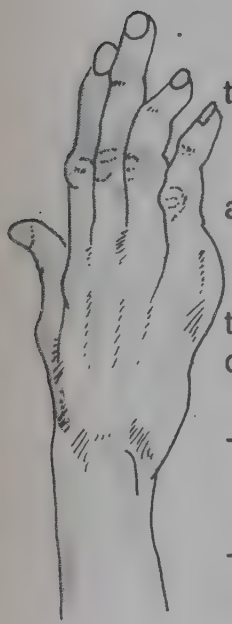
vii. Wipe the scalpel with cotton wool moistened with ethanol. Flame the scalpel in the spirit lamp for 2 seconds. Place the scalpel on a stand to cool before using it again for taking smears from other lesions in the **same** patient.

viii. Clean the cut with ethanol. Place a piece of dry sterile cotton wool over the cut. Apply tincture benzoin to seal the cut.

ix. Leave the slide to dry. Protect from flies and dust.

x. Fix the smears by passing the slide through the flame of the spirit lamp 2 to 3 times. The smears should be uppermost. Do not let the smears char.

xi. Burn the soiled cotton wool and gauze swabs.



Wrap the slides in a paper with the patient's name and number on it. Send or take them to the PHC laboratory for examination.

Refer any patient suspected of having leprosy to the PHC for investigation and treatment.

If the patient is found to have leprosy, he/she will be given the necessary treatment. If treatment is delayed or interrupted the patient can develop complications such as:

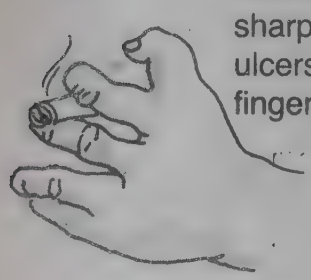
- Discharge and bleeding from the nose, destruction of the nasal bones and deformity of the nose.

- Pain, tingling and paralytic deformities of the eyelids or limbs (inability to close the eye, claw hand, wrist drop and foot drop).

deformity of hand

- Corneal ulcers and blindness.

- As the hands and feet cannot feel pain they are likely to be injured by burns, sharp objects or pressure, without the patient being aware of it. This leads to ulcers of the hands and feet and destruction of the bones with loss of the fingers and toes.



You should have a list of all leprosy cases in your area. On your home visits do the following:

* Encourge every patient to take the medicines regularly.

* Inform the HAM of any cases who are not regular or who have stopped taking the medicines.

* Examine all contacts of leprosy cases, i.e. other members of the household, for the appearance of patches, nerve thickening, etc.

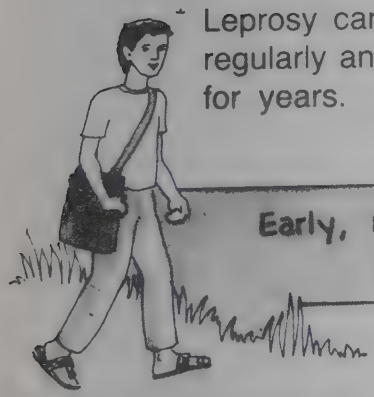
* Tell the patient how to care for eyes, hands and feet.

Advise the community as follows:

* Leprosy is like any other communicable disease. It is caused by a germ and is spread by close, prolonged contact with an untreated infactious patient.

* Leprosy can occur at any age, in either sex, and in rich and poor alike.

* Leprosy can be completely cured if treatment is started early, and is taken regularly and for as long as the doctor advises. The treatment must be taken for years.



Early, regular and complete treatment can completely cure leprosy.

* Deformities can be prevented if early and complete treatment is taken. They can also be prevented by taking care of the eyes, nose, hands and feet.

Leprosy is:

NOT a curse of God;

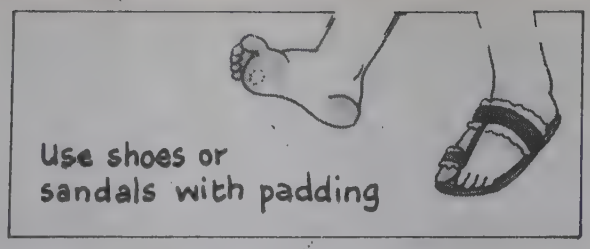
NOT a disease of beggars;

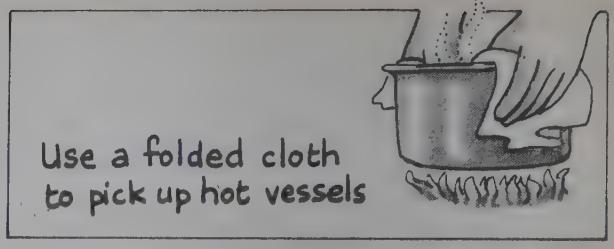
NOT hereditary;

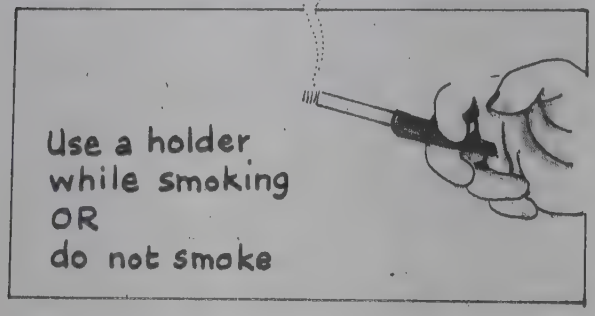
NOT congenital;

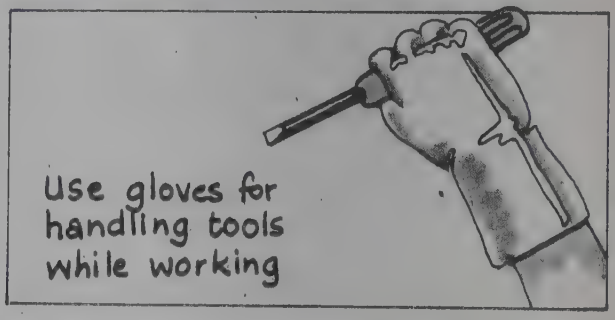
NOT a sexually transmitted disease;

NOT caused by eating any particular foods.









* If deformities have already occured, they can often be correctd by surgery and physiotherapy.

* Patients with leprosy should be treated with sympathy. They sould be encouraged to take early, regular and complete treatment. They should be helped to rehabilitate themselves by accepting them in the society and by giving them suitable employment.

Things to do

1. Obtain from the PHC the following:

   (a) List of all patients from your Subcentre area who are recorded and are being treated for tuberculosis.

   (b) List of all patients from your Subcentre area who are recorded and are being treated for leprosy.

On your home visits:

* Check that these patients are taking their medicines regularly. Encourage them to continue doing so. Those not taking treatment should be motivated to do so.

* Give a copy of the lists of TB and leprosy patients to the HGs in each village in your area. Ask them to follow up these cases and ensure that they take their treatment regularly.

2. Collect or prepare suitable visual aids on tuberculosis and leprosy for use in your health education programmes.

God did make a cure for every disease.
Hedith Sharif

Besides the communicable diseases discussed in the previous chapters, there are many others, some of which cause mild illnes, others make a person seriously ill or are fatal, while still others lead to complications, deformity or sever disability for life. Some of these diseases are discussed in this chapter.

DIPHTHERIA

Diphtheria is an acute infactious disease caused by diphtheria bacilli. The disease effects the tonsils, pharynx, larynx and nose.

The diseases is spread through contact with the discharges of the nose and throat of an infected person. It is also spread through articles soiled with these discharges. It occurs mostly in children who have not been immunized against diphtheria.

The disease is characterized by:

- Sore throat.
- Fever.

- A patch or patches of grayish membrane on th back of the throat and tonsils with a surrounding dull red inflammation.
- In severe cases there is swelling of the neck with difficulty in breathing and in swallowing,
- Toxaemia, i.e. the patient looks very ill, the pulse is rapid, and there is h[illegible] fever.

If you are in doubt as to the cause of sore throat, especially in a child, refer the patient to the PHC.

The most effective measure for the prevention and control of diphtheria is immunization. Infants should be given three doses of DPT vaccine between 6 weeks and 1 year of age. This should be followed by a booster dose at 16 to 24 months, DT vaccine at 5 years on entry to school (See Chapter 13).

Advise the community as follow:

* Diphtheria is a serious and often fatal disease in children.

* It can be prevented by giving every child DPT and DT vaccine.

* If a person has diphtheria:

- Keep others, especially children, away from the patient;

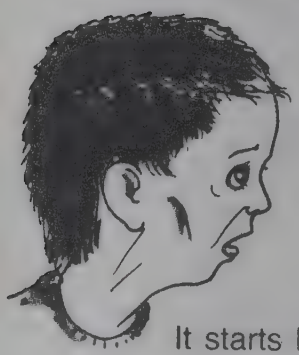
- disinfect all articles in contact with the patient or soiled by discharges from the nose and throat;

- censure that all infants and children who have been in contact with the patient are immunized.

PERTUSSIS (Whooping cough)

This is an acute bacterial disease which involves the throat and bronchi. It is very infectious and spreads by droplet infection or by contact with articles soiled by discharges from the infected person.

Whooping cough is a disease of childhood and usually occurs in epidemics.



It starts like a cold with fever, a runny nose, and cough. At first the child has an irritating cough. Within one to two weeks the child has spasms of coughing without breathing in. Then he breathes in very strongly, producing the typical 'whoop' or crowing sound which gives the disease its name. The child becomes blue in the face and looks as if he is going to choke. After a fit of coughing the child will cough up thick, sticky mucus and will often vomit. The cough lasts for to 2 months.

Whooping cough is especially dangerous in infants, particulary those under 6 months of age. The 'whoop' is generally absent in infants.

Children with whooping cough can develop complications such as broncho-pneumonia, tuberculosis, malnutrition, bleeding from the nose or conjunctive, sore tongue, or hernia.

If a child has whooping cough:

- Give cough mixture.
- Give paracetamol tablets to reduce fever.
- Tell the mother to keep the child at home away from other children.
- Tell the mother to give the child small, frequent feeds.
- Watch for complications. For instance, if the cough does not become less after 3 months, or if the child is losing weight, refer the child to the PHC.
- Protect younger children in the family by giving them DPT vaccination (See Chapter 13).

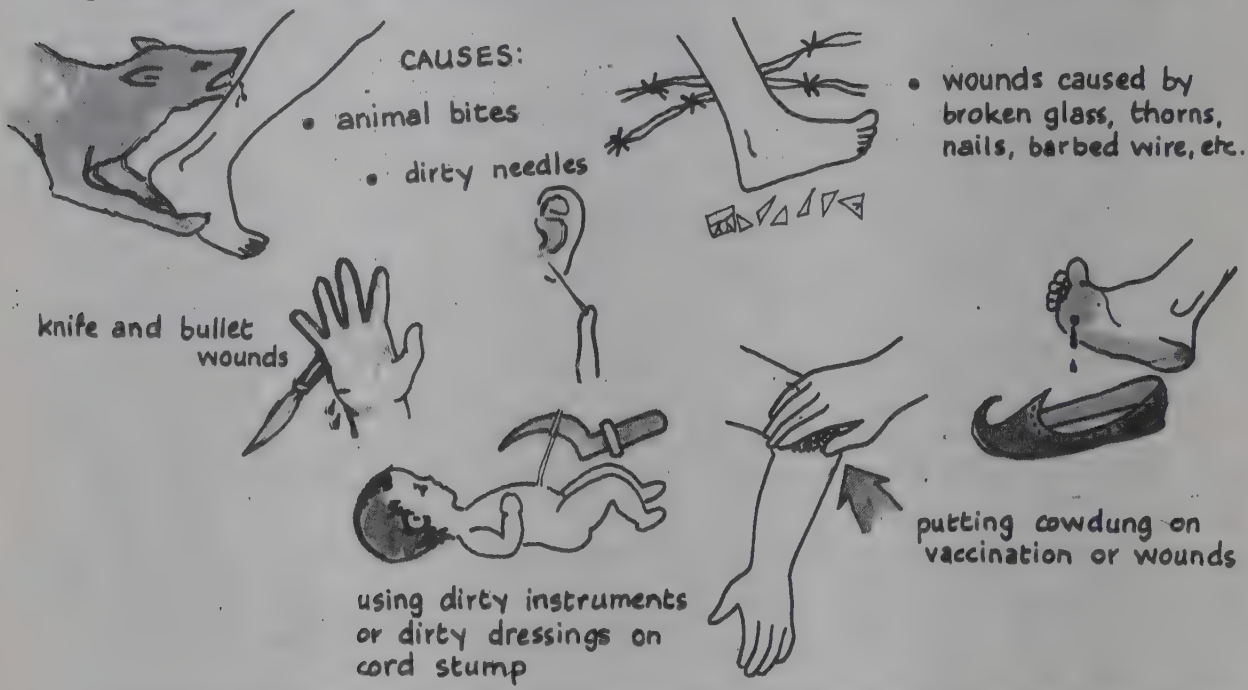
Advise the community as follows:

* Whooping cough is a distressing disease in young children. It is often fatal in infants.
* It can be prevented by immunizing all infants between 6 weeks and 1 year of age with 3 doses of DPT vaccine, followed by a booster dose at 16 to 24 months.
* Children with whooping cough should be kept away from other children.

TETANUS

Tetanus is an acute disease caused by the toxin (poison) of the tetanus bacillus.The tetanus bacillus lives in the intestine of animals. It is found in soil, particulary in soil containing the dung of horses or cattle. When a person has an injury on such ground, the tetanus bacilli enter the body through the wound and produce the toxin. Another way in which tetanus germs enter the body is

through he bites of animals, or wounds caused by dirty instruments. Tetanus germs can also infect a decayed tooth or a discharging ear.


CAUSES:
• animal bites
• dirty needles
• wounds caused by broken glass, thorns, nails, barbed wire, etc.
knife and bullet wounds
using dirty instruments or dirty dressings on cord stump
putting cowdung on vaccination or wounds

Tetanus also occurs in newborn infants if the umbilical cord is cut with a dirty instrument, or if cowdung or dirty dressings are applied on the cord stump

Tetanus toxin effects the nervous system. The signs and symptoms are as follows:

- Painful muscular contractions. These are especially seen in the jaw muscles. As a result the patient cannot open his mouth (lockjaw).

- In babies one of the earliest signs is that the infant refuses to suck. He cannot open his mouth, and he passes few stools.

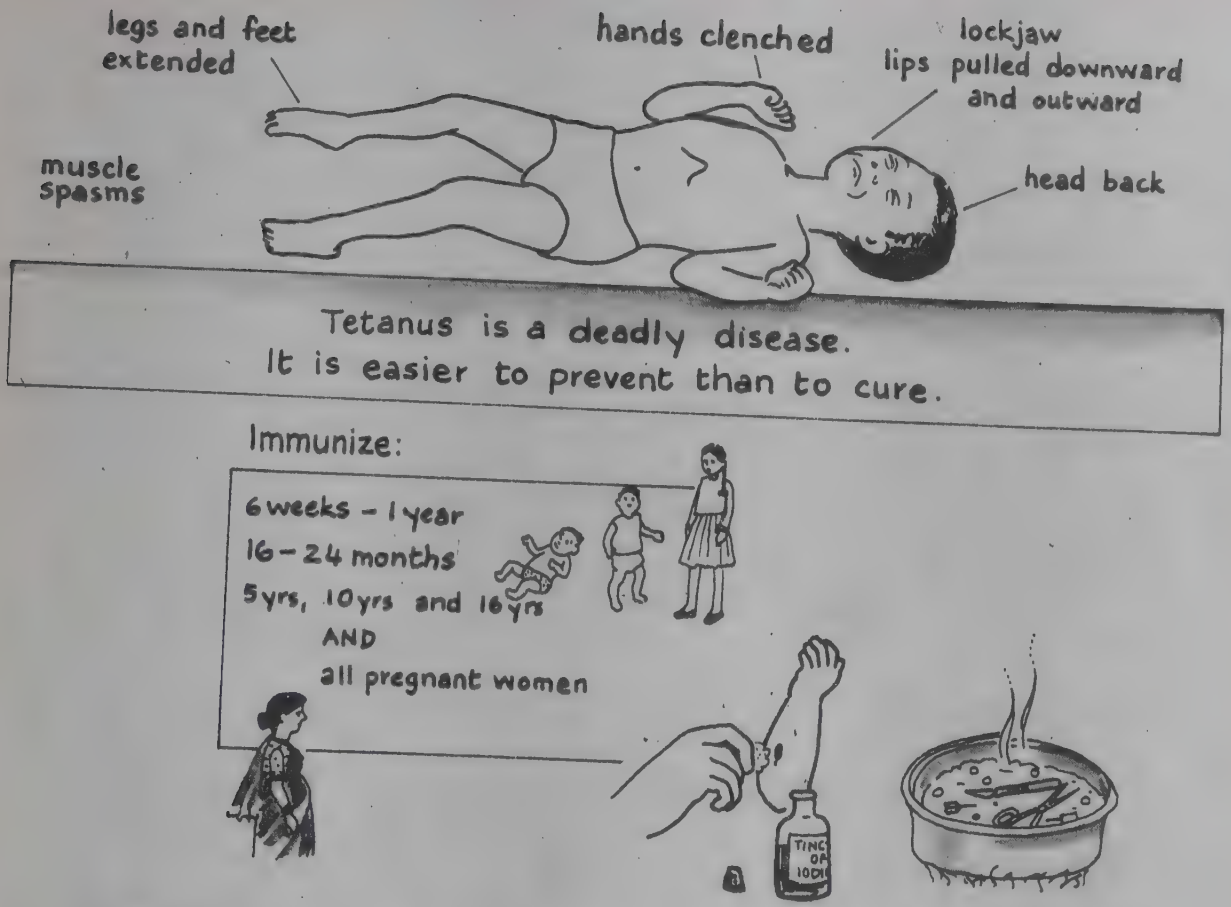
- Later, the spasms spread to the muscles of the back and chest and are very painful. The patient's back is arched during the convulsions. The patient is conscious during the convulsions. Sudden noise or bright light can bring on these convulsions.

- There is fever and profuse sweating.

If you see any of these signs, transfer the patient immediately to the PHC.

Tetanus can be prevented by the following:

- Immunization of all children aged 6 weeks to 1 year with DPT, followed by a booster dose at 16 to 24 months, DT at 5 years (school entry), and TT at 10 years and 16 years (See Chapter 13).



- Immunization of all pregnant women with TT. This will protect their newborn babies from tetanus (See Chapter 13).

- Immunization of those with deep or dirty wounds with TT.

- Ensuring that all wounds are kept clean.

- Always using sterile instruments, e.g. to cut the cord, to pierce the ears, or to give injections.

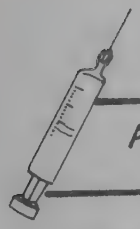
Advise the community as follows:

* Prevent tetanus by immunization of all children and pregnant women.

* Wash wounds thoroughly with soap and water and apply an antiseptic. This is especially important in the case of deep wounds infected by soil.

* Do not apply any cowdung, ash, or dirty dressings on wouds or on the cord stump of the newborn baby.

* Use the services of trained dais or health workers rather than of untrained persons.



Avoid surgery and injections in the rainy months.

POLIOMYELITIS

Poliomyelitis (also known as polio or infantile paralysis) is a virus disease. It is spread from infected to healthy persons through water and food contaminated by faeces from an infected person. It is seen more frequently in children and adolescents. It occurs more often in epidemic form in areas where there is overcrowding, poor sanitation and lack of an immunization programme. Giving a child an injection in the early stages of the disease can bring on paralysis. It is important to avoid injections or surgery, e.g. removal of tonsils, during the rainy months when polio is more frequent, viz. July — August, or during a polio epidemic.

The signs and symptoms are as follows:

- Fever and symptoms suggesting a common cold.
- Headache.
- Diarrhoea and vomiting.
- Painful, tender muscles.

- Stiffness of the neck and back, but the head is not bent backwards as in meningitis.
- Paralysis, wasting and deformity. The limbs, especially the legs, become weak or unable to move (paralysis). They become thin (wasting), and later the child becomes crippled (deformity).

If paralysis effects the muscles of respiration and swallowing, the person may die.

No child should get polio. The disease can be prevented by immunization of all infants between 6 weeks and 1 year of age, followed by a booster dose at 16 to 24 months (See Chapter 13).

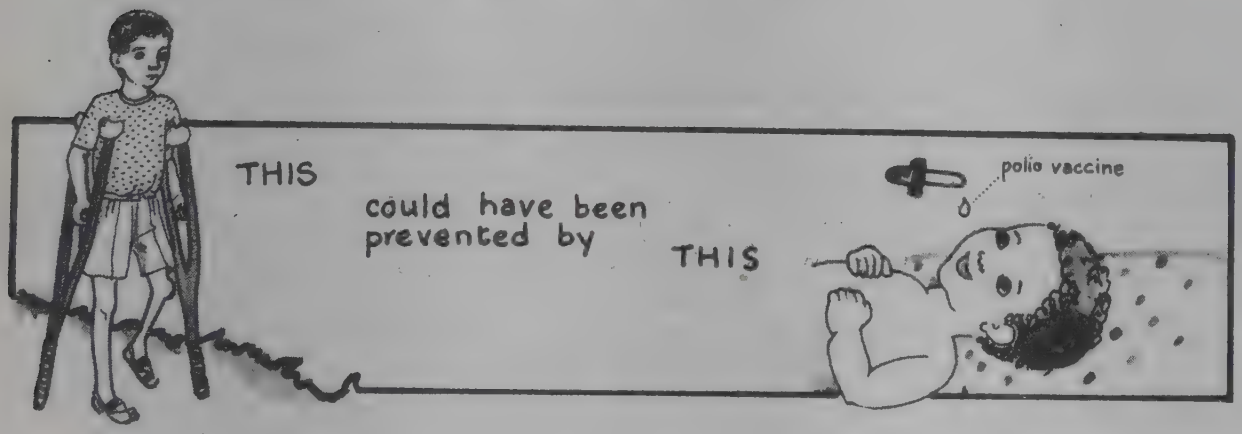
If you see a child with fever, pain and weakness in the limbs:

- Give the child acetyl salicylic acid or paracetamol.
- Advise the mother to keep the child in bed and rest the limb.
- Apply warm fomentations to the limb. **Do NOT** massage the limb.
- After the fever has gone, tell the mother to move the child's weak limb through all its movements several times a day. This may hurt the child, but will prevent deformity later.

- If the limb remains weak after 2 months, refer the child to the PHC.
- If the child has difficulty in breathing or in swallowing, transfer the child immediately to the PHC or hospital.

Advise the community as follows:

* Protect all children against polio by immunization.
* A clean environment can reduce the incidence of polio.
* **Refer** any case of muscle weakness in a child promptly for treatment.
* **Avoid** giving a child injections during the rainy months or when there is a polio epidemic.
* In case of a polio epidemic drink boiled water.

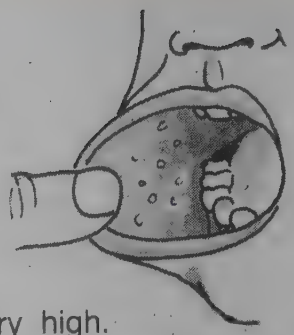


FEVER WITH RASH

The two most common conditions in which there is fever with a skin rash are measles and chickenpox.

MEASLES is common in children. It is caused by a virus. The disease spreads by droplet infection or by direct contact with the discharges of the nose and throat of an infected person.

The signs and symptoms are:



- A running nose.
- Cough.
- Red watery eyes.
- Soreness of the mouth.
- Fever which is sometimes very high.
- On the 2nd or 3rd day white or bluish specks like salt grains appear on the inner side of the cheeks (Koplik's spots).
- On the 4th day a red blotchy skin rash appears on the face - on the forehead at the hairline, behind the ears and on the chin. It gradually spreads downwards and covers the whole body. It lasts for about 5 days and then thin flakes of skin peel off. The fever starts subsiding after the appearance of the rash.

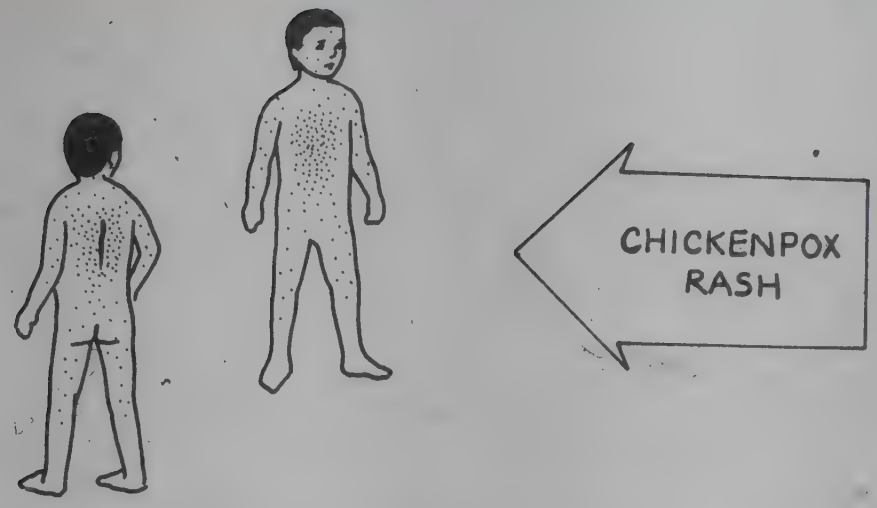
During or after an attack of measles, there may be complications, e.g. pain or discharge in the ear, difficulty in breathing, pneumonia, or diarrhoea and dehydration. These are more common in poorly nourished children.

Treatment

- Give paracetamol tablets.
- Give sulphadimidine tablets.
- Give plenty of fluids and nourishing food, e.g. milk, khichiri, rice, porridge, yellow fruit, green leafy vegetables, etc. This will build up resistance and prevent malnutrition.
- Protect the eyes from glare. Wash them with clean, boiled water.
- if there are complications, transfer the patient immediately to the PHC or hospital.

Advise the community as follows:

* Measles can be a serious and even fatal disease in young children.
* Measles can be prevented by immunizing all children in the community. The vaccine is given between 9 and 12 months of age. Only one dose is required.



* Keep children with measles at home and away from well children.

CHICKENPOX is very common in children but also occurs in adults. It is caused by a virus. It spreads from a sick to a well person by droplet infection or by direct contact with the discharges of the nose and throat of **a patient** with chickenpox. It can also spread through contamination of articles by discharges from the skin lesions. The scabs from chickenpox lesions are **not** infective.

It is usually a mild disease. The signs and symptoms are as follows:

- Slight fever or no fever.

- A rash which is more on the covered then on the exposed parts of the body. It is mainly on the front and back of the chest with a few lesions on the limbs and face. The rash appears first as small red spots, which become like pimples and then develop into blisters. After about 4 days scabs form and fall off. The rash appears in crops and the different stages of the rash are seen at the same time.

- Severe itching over the rash.

- There may be vomiting.

Treatment

- If there is high fever, give paracetamol tablets.

- Apply calamine lotion **or** cool water in which neem leaves have been boiled.

- If the rash becomes infected, apply gentian violet.

- Keep the child's nails short to prevent scratching.

- Keep the child away from school for one week after the rash appears.

Advise the community as follows:

* A child with chickenpox should be put to bed and kept away from other childern for one week.

* Give the child plenty of fluids and nourishing food.

* Prevent the child from scratching himself. This will avoid secondary infection and scarring.

* Inform the school teacher that the child has chickenpox. The teacher can observe other children for the same symptoms.

CONJUNCTIVITIS

Conjunctivitis or sore eyes is one of the commonest conditions which you will have to deal with. This is an acute inflammation of the conjunctives—the thin outer layer of the eye.

Epidemic conjunctivitis may be a bacterial or a virus infection. It spreads rapidly form person to person by direct contact with the eye discharges of the infected person, by contaminated fingers, or by using common kajal sticks, towels and handkerchiefs. It can also be carried by flies settling on the eye discharges of an infected person.

The signs and symptoms are as follows:

- Burning sensation or pain in the eye, especially in bright light.

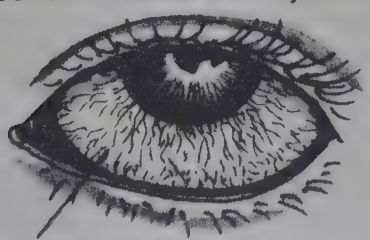
- Watering of the eyes.

- The lids stick together during sleep and the patient cannot open the eyes when he wakes up.

- The eyes look red especially at the outer edge.

- There is sticky mucus or pus which dries to form crusts.

- In severe cases the eyelids are swollen.



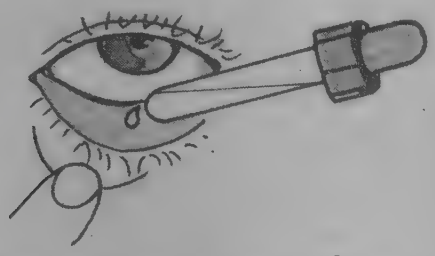
dilated blood vessels all over the conjunctiva

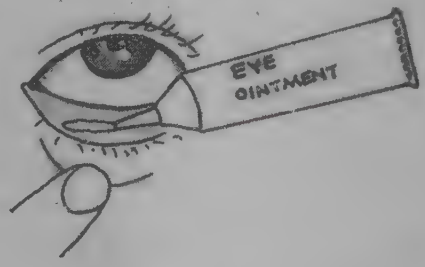
Newborn babies sometimes get gonococcal conjunctivitis from their mothers (See gonorrhoea).

If you see a case with conjunctivitis, do the following:

- Clean the eyes with boric acid lotion or saline as described in Chapter 23. This will remove the discharge.

- Apply sulphacetamide eye drops **or** chloromycetin applicaps **or** tetracycline eye ointment in the eye (See Chapter 23).





- Cover the eye with a green shade or ask the patient to wear dark glasses. **Do not bandagae the eye.** This keeps the pus in.

- Refer the patient to the MO PHC immediataely if:

  * There is purulent discharge;
  * The patient is below five years of age;
  * The eye shows no improvement with treatment for 2 days.

- Wash your hands with soap and water after handling a patient with sore eyes.

Advise the community as follows:

* A person with sore eyes:

- should take the necessary treatment;

- should not go into crowded places where he is likely to infect many others;

- should not bathe in a canal, tank or pond;

- should stay away from school or work while the disease is active.

* Personal hygiene and eye care can prevent sore eyes.

- Use a separate towel and handkerchief.

- Wash the eyes and face.

- Do not let flies settle on the face.

TRACHOMA

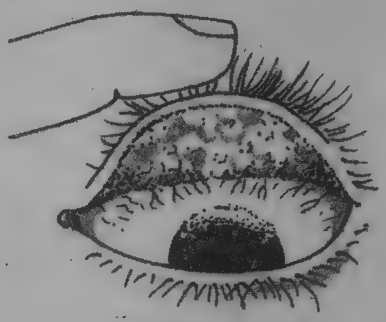
Trachoma is a chronic infection of the eye. It is caused by a virus. If not treated, the condition may last for months or years and can lead to blindness.

The infection is spread through towels, handkerchiefs or other objects which have been contaminated by the eye discharge. It can also be spread by contaminated fingers or by flies carrying the discharge to the eye of a healthy person.

Trachoma is common in areas which are dry and dusty, with little water and many flies.

The signs and symptoms are as follows:

- Red, watery eyes for 1 to 2 months.



- Itching of the eyes and a feeling of having sand particles under the eyelids. the patient tends to rub the eyes.

- If untreated, pinkish gray swellings form inside the upper eyelid. After some years these form whitish scars which make the eyelids thick,so the eyes cannot close, or they cause the eyelashes to turn into the eye 'parhwal'. This damages the cornea and leads to blindness.

- There is a grayish area with fine blood vessels at the upper edge of the cornea. This slowly grows over the cornea so that the cornea become gray and scarred.

If you see a case of trachoma, do the following:

- Clean the eyes and apply sulphacetamide eye drops and tetracycline eye ointment.

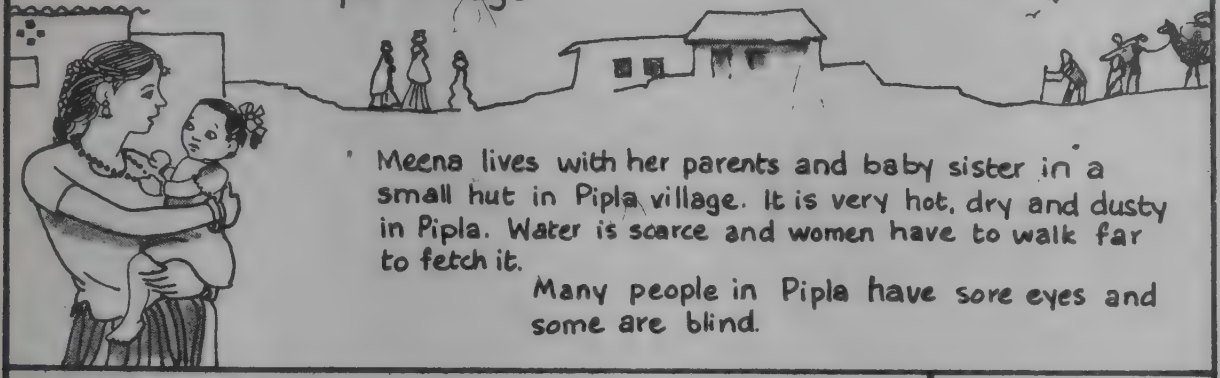
- Teach mothers how to clean their children's eyes and apply the medication.
- Tell them the treatment may take months. Stress that if the treatment is not continued the child may become blind.

- Tell the patient or the parent how to protect others in the household from getting trachoma.

- If there are changes seen in the eye, refer the patient to the MO PHC.

- Examine others in the family for trachoma.

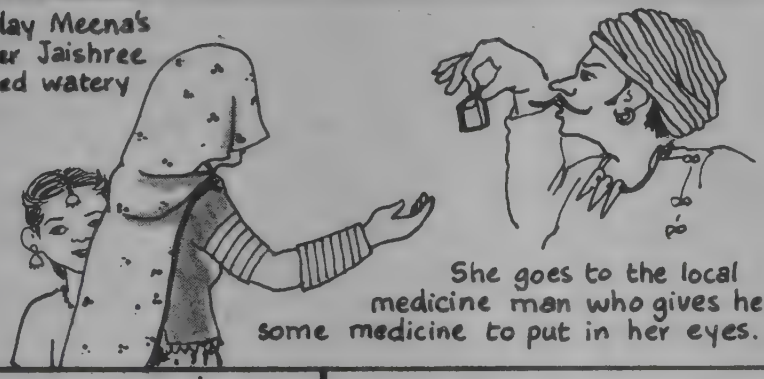
Trachoma in Pipla Village



Meena lives with her parents and baby sister in a small hut in Pipla village. It is very hot, dry and dusty in Pipla. Water is scarce and women have to walk far to fetch it.

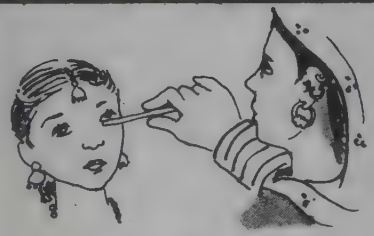
Many people in Pipla have sore eyes and some are blind.

One day Meena's mother Jaishree has red watery eyes.



She goes to the local medicine man who gives her some medicine to put in her eyes.

But it does not help.



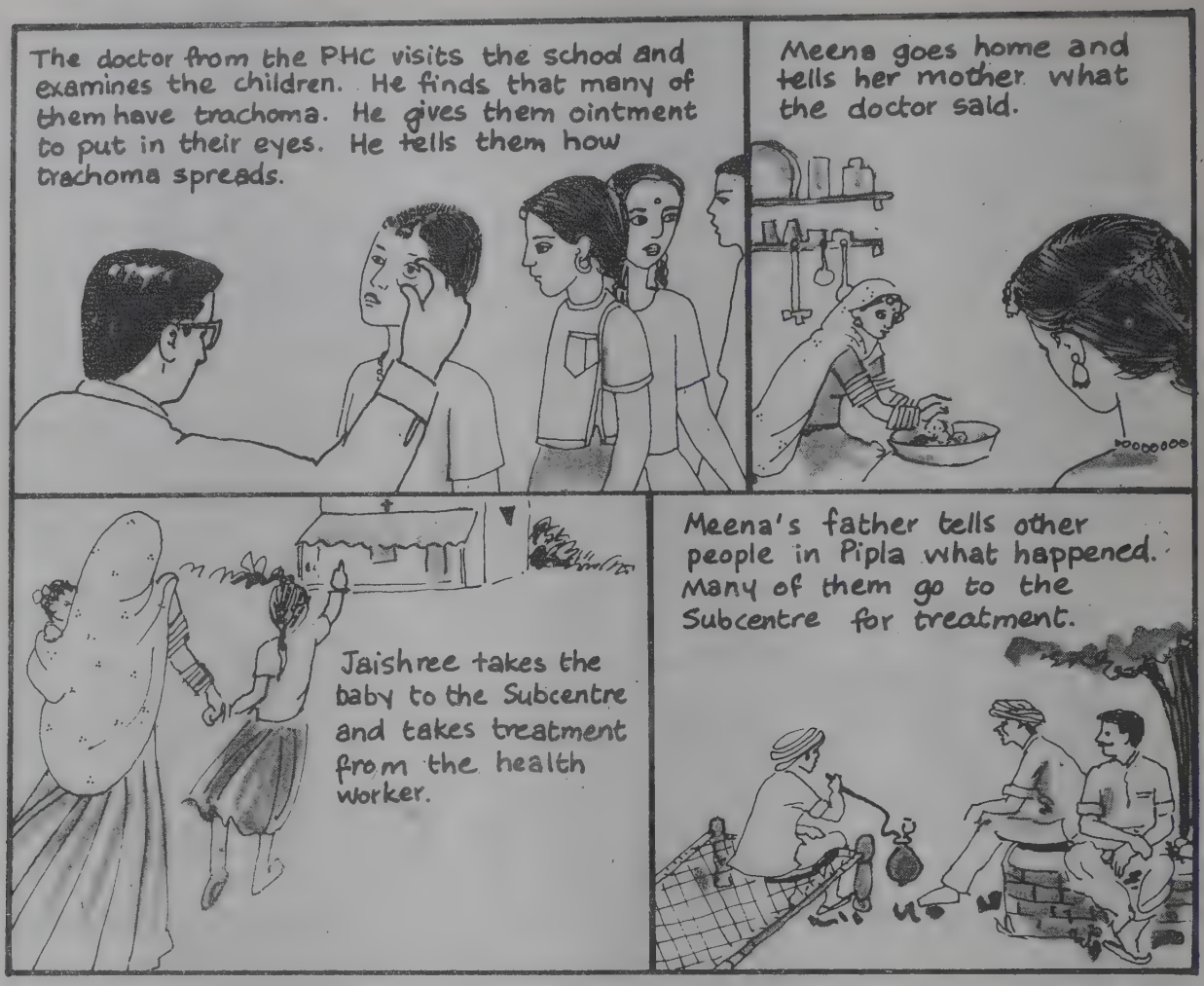
Jaishree puts kajal in her eyes. She uses the same stick to put kajal in Meena's eyes.

After some days Meena also gets sore itchy eyes. She wants to rub them all the time.

Flies sit on Meena's eyelids and then sit on her baby sister's eyelids. The baby also gets red, watery eyes.

At school Meena plays 'blind man's buff' with her friends Asha and Kanta. They also get sore eyes.

Soon other children in the school get sore eyes.

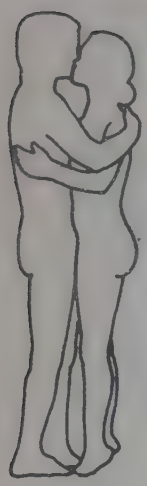

The doctor from the PHC visits the schod and examines the children. He finds that many of them have trachoma. He gives them ointment to put in their eyes. He tells them how trachoma spreads.
Meena goes home and tells her mother what the doctor said.
Jaishree takes the baby to the Subcentre and takes treatment from the health worker.
Meena's father tells other people in Pipla what happened. Many of them go to the Subcentre for treatment.

Advise the community as follows:

* Trachoma is a serious eye disease which can lead to blindness if it is not treated.
* Personal hygiene and eye care can prevent trachoma.
* Treatment must be continued for a long time.
* If a person has trachoma, he should take all precautions to avoid infecting others.

GONORRHOEA AND SYPHILIS

These are known as sexually transmitted diseases (STD) or venereal diseases (VD) because they are spread directly from one person to another through sexual contact.



GONORRHOEA is caused by bacteria which are present in the uro-gential tract of the infected man or woman. These bacteria are present in pus which comes out of the urethra. When the person has sexual intercourse, the bacteria enter the urethra and genital tract of the sexual partner.

In males, 2 to 7 days later, there is a purulent discharge from the urethra. Other symptoms in males include:

— Burning and pain while passing urine.

— Itching at the tip of the penis.

— Difficultly in pasing urine or sometimes inability to pass urine.

In females, there is mild purulent discharge from the urethra or cervix. This may pass unnoticed. The woman may also complain of burning while passing urine.

If the disease is not treated it spreads to other parts of the body, e.g. the testes or epididymis, the joints or, in women, the fallopian tubes and ovaries causing infertility. The person remains infectious to others as long as he or she is not treated.

If you see a man with purulent discharge from the urethra,

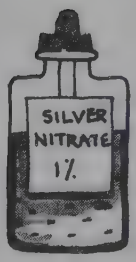
— Find out when he has sexual intercouse and, if possible, trace the source of infection.

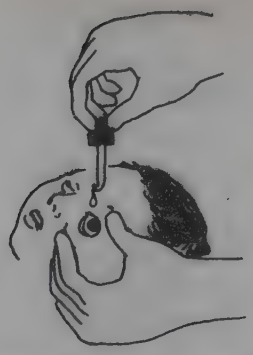
— Tell him to drink plenty of water.

— Tell him not to have sexual intercourse until he is cured.

— Refer him and his sexual partner to the PHC for investigation and treatment.

Gonococcal conjunctivitis





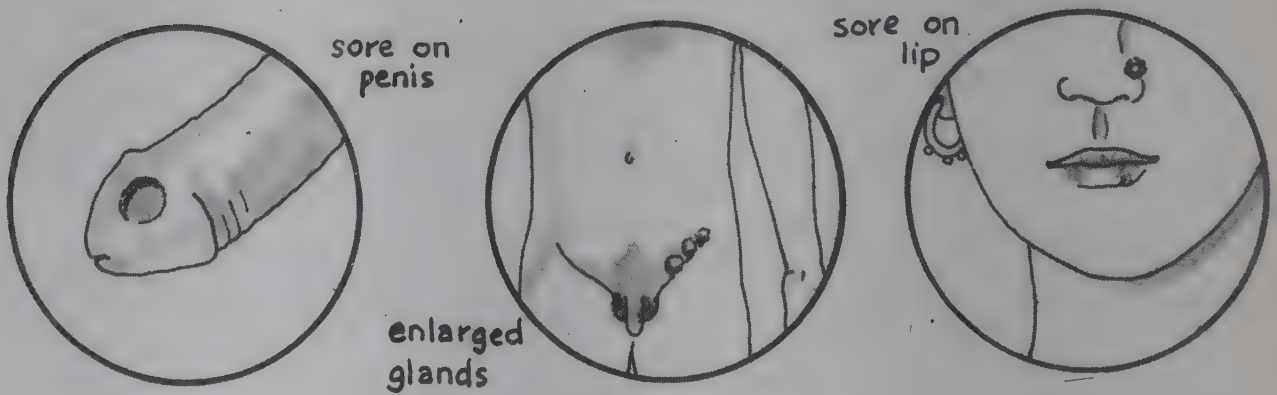
If a pregnant woman has gonorrhoea, her baby's eyes can be infected during delivery. This causes severe conjunctivitis within the first two days of life. There is swelling of the eyelids and purulent discharge. if the baby is not treated quickly it will become blind.

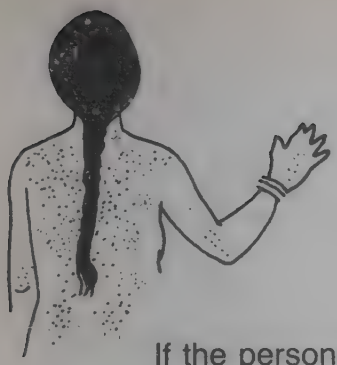
Gonococcal conjunctivitis in infants can be prevented by putting two drops of 1 per cent silver nitrate *or* 1 per cent of silver proteinate *or* tetracycline ointment into the eyes of *all* newborn children.

Refer any newborn infant with conjunctivitis *immediately* to the PHC for treatment.

SYPHILIS is a common and dangerous disease. It is caused by bacteria which are spread through sexual contact. It is also spread through direct contact with the skin or mucous membrane of an infected person in the second stage of the disease. Syphilis can also be transmitted by transfusion with the blood of an infected donor. It can be passed from an infected mother to her unborn child through the placenta. This results in a stillbirth or in the birth of a syphilitic infant.

The first sign of syphilis is a sore (chancre) which appears on the penis in a man, or on the cervix in a woman. This usually happens about 3 weeks after sexual contact with an infected person. The sore is painless, clean and hard and sometimes passes unnoticed. The glands in the groin can be felt as small, hard and painless swellings. At this stage a woman may not be aware that she has syphilis. In some cases a chancre can appear on the lips, fingers or anus.





Rash on body

If the person does not take proper treatment, the primary sore disappears but the disease continues in the body. Weeks or months later, the person develops a rash all over the body, sore throat, ulcers in the mouth, or swollen joints. At this stage the patient is very infective to others. If untreated, these signs also disappear and the patient thinks he is well. But the disease spreads to the bones, heart, and brain, causing heart disease, paralysis, insanity, and other serious problems.

SPREAD of SYPHILIS

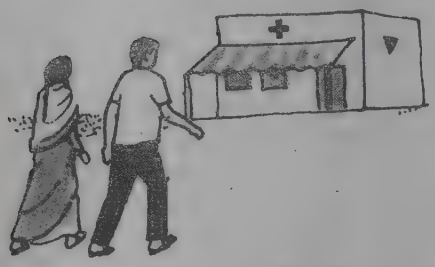
Boparai has syphilis
He visits the red light area and has sexual contact with Phulrani.
Phulrani gets syphilis from him.
She has sexual contact with Madanlal and gives him the germs of syphilis.
Madanlal has sexual contact with his wife Prema and gives her syphilis.
Prema becomes pregnant.
When she delivers her baby, the baby is born with syphilis.

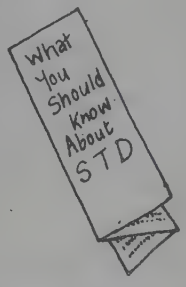
If you see a patient with a sore on his penis:

— Find out when he had sexual intercourse and, if possible, trace the source of infection.
— Tell him not to have sexual intercourse until he is fully treated.
— Refer him and his sexual partner to the PHC for investigation and treatment.

Advise the community as follows:

* Anyone who has gonorrhoea or syphilis should take treatment at once. The person should not have sexual intercourse until he or she is cured. This will prevent others from being infected.
* Any ulcer on the genitals, purulent discharge from the urethra, or enlarged lymph glands in the groin may be signs of STD.
* **Both** sexual partners must take treatment. If one does not take treatment, he or she can pass the disease to the other person.





* Use condoms to avoid infection.
* Clean the genitals with soap and water after sexual intercourse.
* If a pregnant woman has gonorrhoea, her baby can get eye infection which can result in blindness. If a pregnant woman has syphilis, her baby may be stillborn or may be born with congenital syphilis. Every pregnant woman should receive prenatal care and, whenever possible, she should have her blood tested for syphilis.
* Young people should know the dangers of prostitution and sexual promiscuity (having sex with many different persons).
* STD is curable. Do not hide the disease. Take treatment before it gets complicated.

AIDS (Acquired Immuno Deficiency Syndrome) is a very serious disease caused by a virus. It is spread

— by sexual intercourse with an infected person
— by contaminated needles and syringes
— by transfusion of infected blood
— by an infected mother to her baby

You can help to prevent AIDS as follows:

* Educate people to have sex with only one faithful partner.
* Sterilize syringes and needles thoroughly before use.
* If a person has chronic diarrhoea and prolonged fever with loss of weight, refer him/her to the MO PHC.

RABIES

Rabies is a virus disease which is always fatal in man. The disease can affect almost any animal. The saliva and other body secretions of a rabid (mad) dog, cat, monkey, or other animal contains the rabies virus. When such an animal bites or scratches a person, the rabies virus enters the broken skin.

If the person is not protected by anti-rabies vaccine, he develops symptoms within 2 to 8 weeks:

— Headache.
— Fever.
— Spasm of the muscles of swallowing.
— Delerium or convulsions.
— Paralysis of the respiratory muscles and death.

How can one recognize a rabid animal?

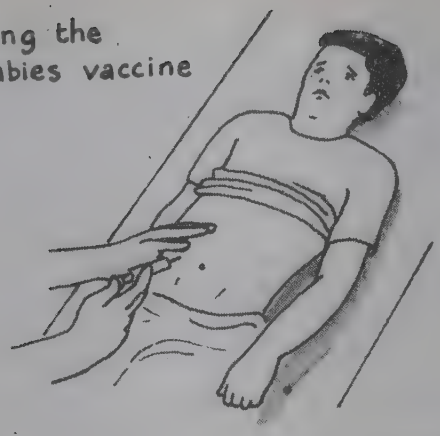
A rabid dog shows a change in its behaviour. It may become very vicious (furious rabies) or very quiet and docile (dumb rabies). The bark sounds different and the dog swallows pieces of wood or stones. It may refuse its feeds and develop fever. The hind legs become paralysed and a lot of saliva runs out of its mouth.

A rabid cat becomes restless, aggressive, jumps backwards, and strikes at air. Saliva drips from its mouth.

Rabies in domestic animals can be prevented by vaccinating them at regular intervals.

If a person is bitten by an animal:

— Immediately flush the wound with plenty of soap and water.
— Apply an antiseptic to the wound.
— Immunize the person against tetanus.
— Refer the person to the PHC or district hospital for anti-rabies vaccine.
— Keep the animal under observation for 5 days:



* If the animal remains alive and healthy for 5 days, the person who was bitten need only receive vaccine for 5 days.
* If the animal develops signs of rabies or dies, the person who was bitten must receive anti-rabies vaccine daily for 14 days.
* If the animal is unknown, or has been killed, or has escaped, the person who was bitten must be given the full course of anti-rabies vaccine, i.e. for 14 days.

Note: While a person is receiving anti-rabies vaccination, he should avoid:

* excessive physical and mental exertion
* alcohol and tobacco
* spicy food
* late nights.

Rabid animals and unvaccinated dogs and cats bitten by rabid animals should be destroyed immediately.

Advise the community as follows:

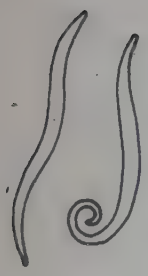
* Rabies is fatal but it can be prevented.
* Vaccinate all pet animals and livestock against rabies.
* Prevent pet animals from wandering about on their own. Do not let them come into contact with stray animals or wild animals.
* Destroy stray animals in the area.
* Destroy any rabid animals.
* Do not let children fondle unknown dogs and cats.
* In case of animal bite or scratch, wash the wound thoroughly with soap and water, apply an antiseptic, and take anti-rabies vaccination as advised by the doctor.

INTESTINAL WORMS

In India worm infection is very frequent, especially among children. Worms are of different types. Some of the most commonly seen are roundworm, threadworm (or pinworm), and hookworm. They live in the intestines and lay eggs which are passed in the faeces. The eggs develop into larvae which become adults.

Each kind of worm has its own life cycle and way of entering the body.

Worms can be easily diagnosed by examining the stools under the microscope and looking for worm eggs. In roundworm and threadworm infection, the adult worms can be seen in the stools.

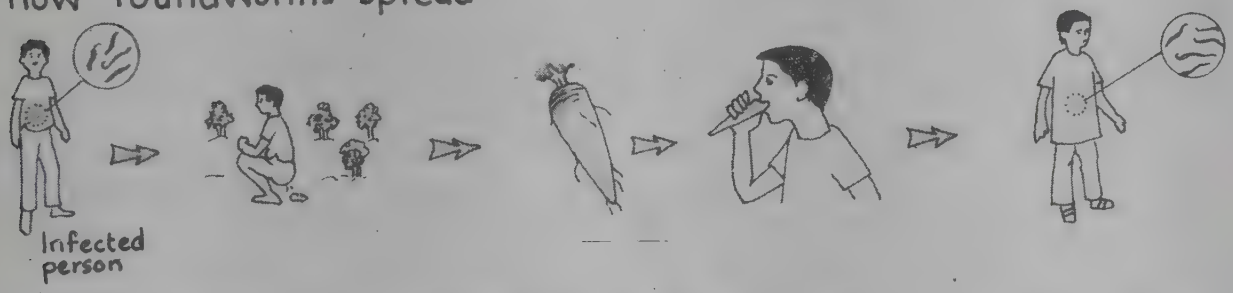


ROUNDWORMS are very common, especially in communities where sanitation is poor, water scarce, and people eat raw vegetables without washing them.

The adult worms are about 20 cm long, round and smooth with pointed ends. They swim about in the intestines. The female lays its eggs which pass out in the faeces. If the infected person defaecates in the open fields, vegetables can be contaminated by faeces containing roundworm eggs. If these vegetables are eaten raw without washing them, the eggs are swallowed.

If a person with roundworms does not wash his hands after defaecation and handles food, he or she can infect others.

How roundworms spread



Contaminated soil is also carried on feet and footwear into houses. Children can swallow roundworm eggs if they eat mud, or if they put food or other objects which have fallen on contaminated ground into their mouths.

In the intestines the eggs hatch into larvae which pass through the gut wall and enter the blood stream. They then travel to the lungs, are coughed up, swallowed, and reach the intestines where they become adults.

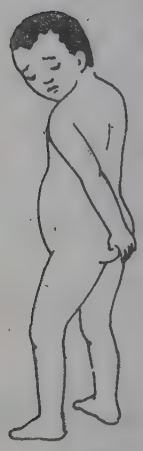
A child with roundworms has the following symptoms and signs:

— There may be vague symptoms like indigestion and abdominal discomfort or pain.
— The worms eat the food in the stomach so that the child is malnourished with a swollen belly.
— Roundworm eggs are found in the stools. The adult worms are often passed in the stools.
— If there are many roundworms they may come out in the vomit. Sometimes they form a ball which blocks the gut.

If you find a child with roundworms:

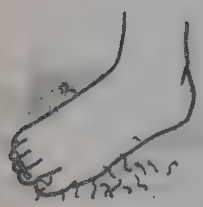
— Give a course of piperazine citrate or piperazine adipate *or* give a course of mebendazole tablets.
— Find out if others in the family have roundworms and treat them.

THREADWORMS or pinworms are also common in children. The worms live in the intestines and are passed in the stools. They look like pieces of fine white thread. The female worms come out of the anus at night and lay their sticky eggs on the skin around the anus. This causes itching. When the child scratches himself the eggs stick under the nails and are carried to the mouth or to food so that the child reinfects himself. The eggs also contaminate bedding and clothing so that others in the family are infected.



If a child has itching at the anus and passes threadworms and threadworm eggs in the stools:

— Give a course of piperazine citrate or piperazine adipate *or* give a course of mebendazole tablets.
— Apply vaseline or mustard oil in and around the anus at bedtime. This will reduce itching.
— Advice the mother to see that the child wears pants while sleeping and to prevent him from scratching the anus. Tell her to keep the child's nails short and clean, and to bathe the child often and change his clothes.
— Find out if others in the family have threadworms and treat them.



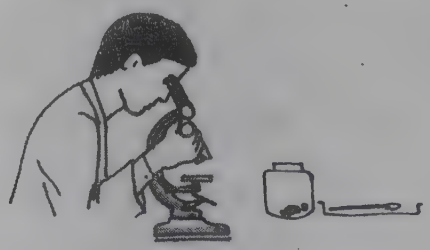
HOOKWORMS live in the small intestine and attach themselves to the wall of the gut. The adult females lay thousands of eggs which pass out in the faeces. The eggs hatch into larvae in warm, moist soil. If a person walks barefoot on this ground, the larvae bite through the skin and enter the body. They pass through the lymph vessels into the blood stream. They reach the lungs, pass up the trachea to the throat, are swallowed and reach the small intestine. Here they grow into adult worms.

The signs and sysmptoms of hookworm infection are as follows:

— When the larvae enter the skin they cause itching (ground itch).
— The worms suck blood from the gut wall and cause anaemia.
— The person feels week and loses his appetite.
— Hookworm eggs are found in the stools.

If you see a person who is very pale,

— Refer the person to the PHC for stool examination.



— If the stools contain hookworm eggs give the person bephenium hydroxy-naphthoate granules *or* give a course of mebendazole tablets.
— Give the person iron and folic acid tablets.

Advise the community as follows:

* Construct and use sanitary latrines.
* Wash hands after defaecation and before handling food.
* Do not let children eat mud or food which falls on the ground.
* Keep nails short and clean.
* Discourage children from sucking their finger, biting their nails, and scratching the anus.
* Bathe frequently and change clothing and bedding often.
* do not go barefoot especially in places used for defaecation.
* keep footwear outside the house and wash feet before entering the house.
* If any member of a household has a worm infection, he or she should take the necessary treatment. All others in the household should have their stools examined and take treatment.

Prevent worm infection by
* personal hygiene
* environmental sanitation.

Things to do

1. How many cases of measles were there in your Subcentre area during the last year? Is measles vaccination available in your area? If so, how many children have been immunized against measles? Is there any difference in the number of cases of measles before and after the immunization programme started?

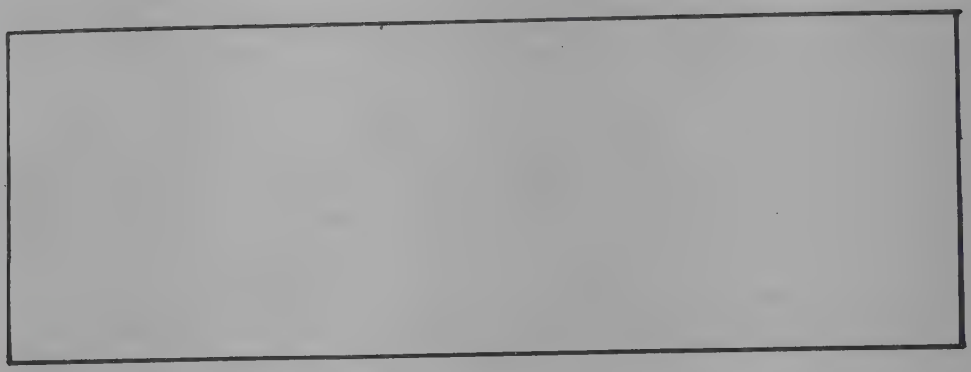
2. Plan with the HWF and HAM an educational programme on one or more of the communicable diseases discussed in the chapter. This will depend on:

— the time of the year;
— how common the disease is in your area;
— the extent of protection by vaccination of the children in your area;
— the level of personal and environmental hygiene in the area.

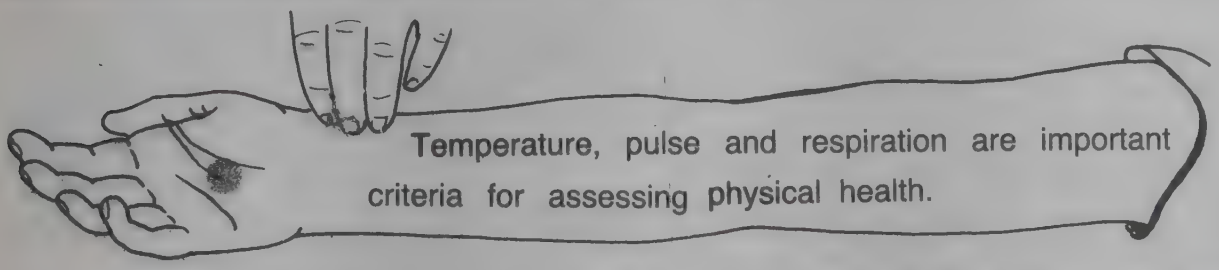
3. Collect or prepare suitable visual aids for teaching about these diseases.

PART V

PRIMARY MEDICAL CARE



Chapter 19 Temperature, Pulse and Respiration (TPR)
Chapter 20 Compresses, Fomentations and Inhalations
Chapter 21 Sterilization and Disinfection
Chapter 22 Dressing Wounds and Bandaging
Chapter 23 Administering Drugs
Chapter 24 Diagnosis and Treatment of Minor Ailments
Chapter 25 First Aid in Emergencies



Temperature, pulse and respiration are important criteria for assessing physical health.

Temperature, pulse and respiration are known as vital signs. Together with blood pressure, they indicate the ability of the body to produce and loss heat, and the action of the heart and lungs.

These three signs are closely inter-related so that when one of them becomes abnormal, the other signs are also affected. For example, an individual with an infected foot may have a raised temperature, but his pulse and respiration may also be more rapid than normal because the heart and lungs are working harder to rid the body of waste products.

Temperature

The body produces heat when it burns food. It loses heat through the body discharges, the skin and the lungs. When there is a proper balance in the amount of heat produced and lost, the body temperature is normal, i.e. 37° Celsius or 98.4° Fahrenheit. If the temperature is much higher or lower than this, it means that the balance has been upset.

Factors that effected body temperature:

A number of factors effect body temperature

— **Water:** Perspiration cools the body because as it evaporates from the skin, heat is lost. When a person has a haemorrhage, both water and heat are lost and since this happens rapidly, the temperature will fall. Diarrhoea and vomiting, especially without fluid replacement, can cause similar lowering of the temperature.

— **Food:** An individual who will not eat or is unable to eat, but who is also perspiring and has severe diarrhoea, will have a more drastic upset in body temperature. Because the body is producing less heat.

— **Infections:** During infection the body defences are activated causing an increase in activity of the tissues. This raises the temperature of the body.

— **Physical activity:** The activity of muscles generates heat in the body and raises the body temperature. Those who are immobile or have very little physical activity tend to have a lowered body temperature.

Factors that affect body temperature

- Lower temperature:

haemorrhage

diarrhoea

vomiting

starvation

cold

- Raise temperature:

infection

physical activity

hot weather

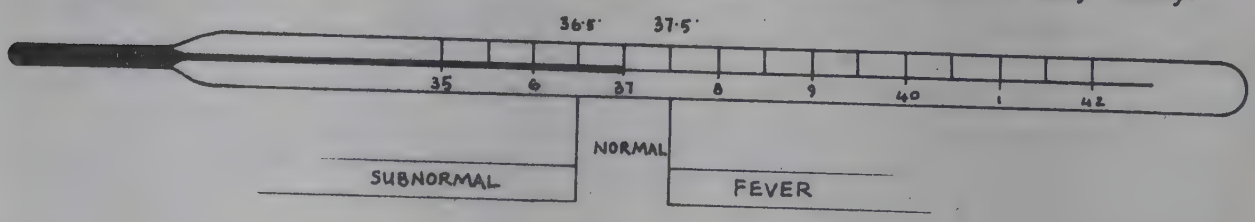
— **Weather and clothing:** Extremes of heat or cold due to weather or amount of clothing especially affect the temperature of infants and old persons. This is because their temparature regulatory machanisms are not able to adapt readily to heat and cold.

Temperature range:

There are slight variations in body temperature so that two individuals who are both well may not have exactly the same temperature. The normal body temperature taken by mouth is 37°C (98.4°F). However, a temperature within the range of 36.5°–37.5°C (97.4°–99.5°F) is considered normal.

An individual has a fever when his temperature rises over 37.5°C (99.5°F). He has a subnormal temperature if it falls below 36.5°(97.4°F).

Any raised or subnormal temperature, especially among young children, is a serious sign of illness. It should be handled promptly without any delay.



Sites for taking the temperature:

The sites for taking an individual's temperature using a clinical thermometer are:

- the mouth
- the axilla (armpit)
- the groin
- the rectum

— the mouth
— the axilla (armpit)
— the groin
— the rectum

The temperature is most commonly taken in the axilla. However, a temperature taken by rectum is the most accurate. Taking the temperature by mouth can be unreliable and unsafe in the case of a small child, if the individual is unconscious, cannot keep his mouth closed, or cannot understand the instructions for keeping the thermometer in the mouth. The groin is a convenient site in children. It is seldom used in adults because it requires undressing.

The temperature of an infant or young child should never be taken by mouth.

Method of taking the temperature by mouth:

i. Explain what you are going to do to gain the cooperation of the patient or parent.

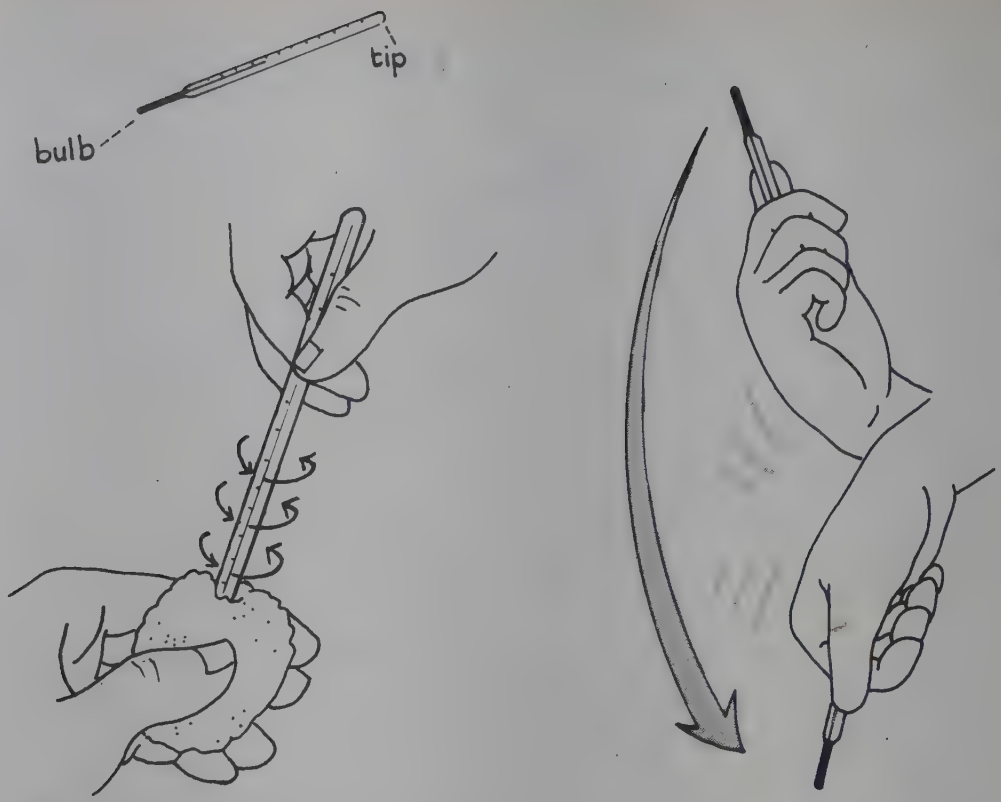
ii. Use an oral thermometer which has a pointed, elongated bulb end.

iii. If the patient has had a hot or cold drink or has been smoking for some time, wait for at least 30 minutes before taking the temperature by mouth.

iv. Remove the thermometer from its container or from the disinfectant solution in which it is kept. Hold the tip end and not the bulb end.

v. Rinse it with a cotton swab which has been moistaned with water. Dry it with a dry swab. Use a twisting motion to do this, beginning at the bulb end and working towards the tip end.

vi. Read it by slowly turning the thermometer horizontally until you can see where the mercury stops on the scale.



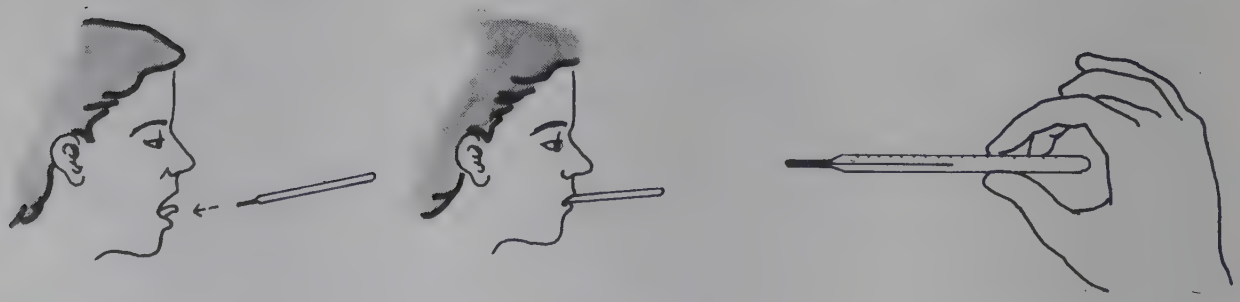
vii. Hold the thermometer by the tip end and shake it down by a sharp movement of the wrist until the mercury column drops below 37^0C (98.4^0F).

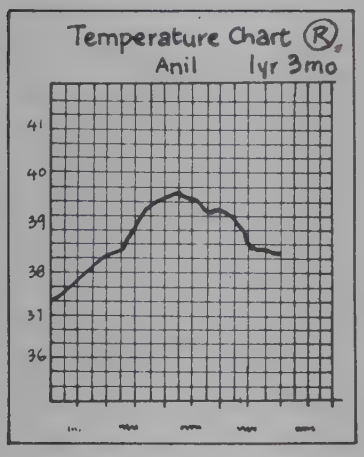
viii. Place the bulb end of the thermometer under the patient's tongue and instruct him to close his lips over it, but not to bite down on it. If the patient accidentally crushes the thermometer in his mouth, remove all particles at once. Give the white of an egg as an antidote to the mercury.

ix. Leave the thermometer in place for two minutes. Remove it and read the temperature. If the reading seems too low or too high, replace it in the mouth and leave it for another 2 minutes.

x. After reading the thermometer, wash it with soap and water. Shake down the mercury, dry it, and replace it in the container. Never use hot water to clean thermometers because they will break if this is done.

xi. Record the temperature in the patient's card.





Method of taking a rectal temperature:

i. Explain what you are going to do to gain the cooperation of the patient or parent.

ii. Use a rectal thermometer which has a globular bulb end. Steps iii to vi are the same as steps iv to vii for oral temperature.

vii. Let the patient lie on his left side. Place an infant or child on its abdomen preferably on the mother's lap. Keep a piece of cloth handy in case the child passes a stool.

viii. Moisten a cotton swab with oil or other lubricant and apply it to the bulb end.

ix. Gently insert the bulb end into the anus for about 3.5 cm. Do not use force because you may pierce the wall of the rectum. Hold it in place for an infant or young child.

x. Leave the thermometer in place for two minutes. Remove it, wipe off excreta with a cotton swab so that the mercury is clearly visible, and read it. Normal rectal temperature is 37.5^{0}C (99.6^{0}F) or half a degree Celsius higher than oral temperature.

xi. Clean the thermometer as described in step x for taking oral temperature. Replace it in the container.

xii. Record the temperature in the patient's card. Place the letter (R) next to the figure to indicate that it is a rectal temperature.

Mathod of taking a temperature in the axilla or groin:

i. Explain what you are going to do to gain the cooperation of the patient or parent.

ii. Use an oral thermometer for taking the temperature in the axilla or groin. Steps iii to vi are the same as steps iv to vii for taking the oral temperature.

vii. Wipe the axilla or groin so that it is dry.

viii. **For axillary temperature:** Place the thermometer in the armpit. Bring the arm down so that it touches the side of the chest with the elbow bent and the forearm placed across the abdomen or chest.
For groin temperature: Place the thermometer in the fold of the groin and keep the thighs together.

ix. Leave the thermometer in place for two minutes for either site.

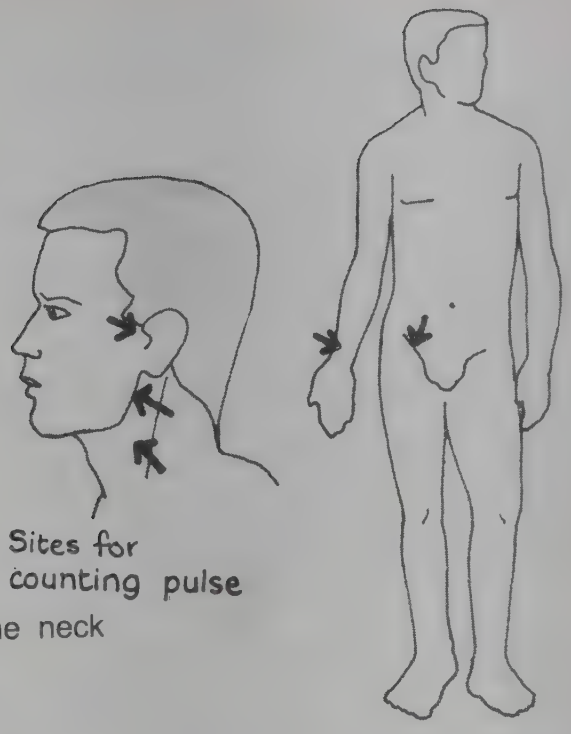
x. Remove and read. Normal axillary or groin temperature will be 36.5^{0}C (97.6^{0}F) or half a degree Celsius lower than oral temperature.

xi. Clean the thermometer as in step x for taking oral temperature. Replace it in the container.

xii. Record the temperature in the patient's card. Place either an (A) or a (G) next to the temperature to indicate whether it was taken in the armpit or in the groin.

Pulse

The pulse can be felt by pressing a large artery against a bone in several different places on the body. The pulse is most commonly taken at the wrist using the radial artery. However, when this is not possible, other sites are used to count the pulse. These other sites are:



— in the groin

— in front of the ear

— on either side of the front of the neck

— on the angle of the lower jaw.

There are several points that you should note carefully when you are counting the pulse of a person, viz. the pulse rate, the strength of the beats, and their regularity or rhythm.

Pulse rate:

The pulse rate varies with the age of the individual, the amount of blood circulating in the body, the amount of physical activity, the emotional state, the use of drugs, and the presence of infection in the body.

The normal pulse rate for:

Infants is from 120 to 140 beats per minute

Children is from 80 to 90 beats per minute

Adults is from 60 to 80 beats per minute.

The following factors affect the pulse rate:

* **Physical activity,** especially strenuous work done by a person makes his heart work harder so that it beats faster. When a person is at rest or asleep, the pulse rate is lower than when he is awake because the heart does not have to work as hard.

* **Fear, excitement or anger** increase the pulse rate.

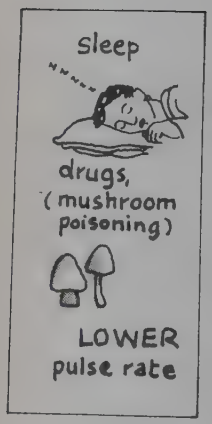
* **Certain drugs** can either increase or decrease the pulse rate.

* **Volume of blood:** When this decreases due to haemorrhage, the pulse rate increases.

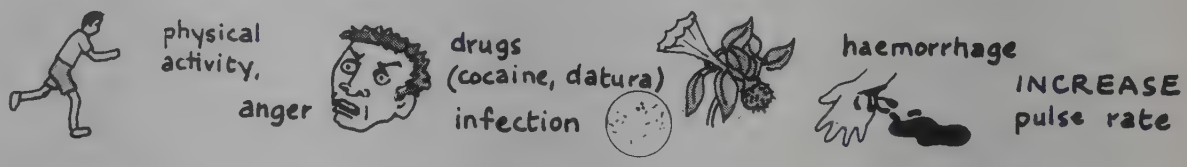
Strength of the pulse:

Your fingers can feel the pulse beat best when an artery is pressed against an underlying bone. The strength of the beat varies with the amount of blood that is circulating in the body at the time when the pulse is counted, the condition of the heart, and the elasticity of the blood vessels. Normally each beat is strong. When a person is losing or has lost a lot of blood, or when the blood supply to the heart is insufficient, or when the heart is diseased, the pulse will feel weak or thready.

Rhythm of the pulse:



The rhythm of the pulse refers to the interval between the beats. A normal rhythm has the same spacing between beats. Irregular spacing between beats usually means that the person has some type of disease.



Method of counting the pulse:

i. Put the person at ease by explaining what you are going to do. Ask him to sit or lie down with the arm that you are going to use supported and extended.

ii. Gently press the tips of the first three fingers on the spot at the base of the thumb until you feel the pulse. If you cannot feel it at the first attempt, move your fingers slightly until you do.
Do not use your thumb for counting the pulse because it has a pulse of its own. This will interfere with the count.

iii. Count the number of beats for one minute using a watch with a second hand. Note the strength and regularity of the beats as you are counting the pulse.

iv. Record the pulse rate on the individual's card. Note any deviations in strength and regularity.

* **Infections** usually raise the body temperature and the pulse rate also usually increases in proportion to the temperature.

Respiration

The rate and depth of respiration vary with the age, activity and the state of the individual's health.

Rate of respiration:

The normal rate of respiration for:

Newborn infants is 40 to 44 per minute

Children is 25 to 30 per minute

Adolescents is 18 to 22 per minute

Adults is 15 to 20 per minute.

Respirations which are less than 15 or more than 40 per minute in **in a child,** or less than 10 or more than 35 per minute

in an adult, are usually serious indications of illness. Such individuals should be referred promptly to the PHC.

Nature of respiration:

In some respiratory conditions, respirations may become noisy due to the presence of secretions in the respiratory passages. Therefore, when you are counting respiration, you should note whether breathing is quiet or noisy. In pneumonia the respiration is rapid (more than 40) and shallow. Some persons become breathless when lying down and can only breathe comfortably when they sit upright. This happens in certain diseases of the heart and lungs, e.g. asthma.

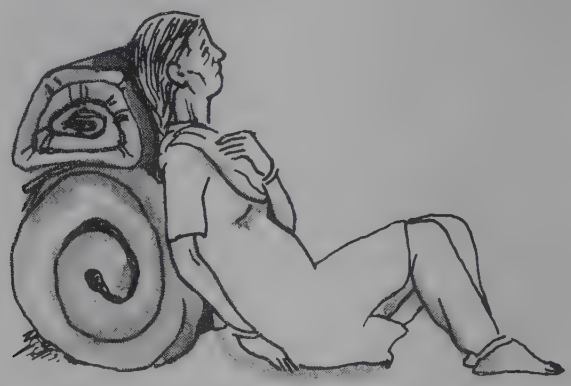
Other signs which show that a person is having breathing difficulties are as follows:

— Flaring of the nostrils (widening). This is especially significant when it occurs in infants and young children. It indicaters the presence of acute respiratory infection (ARI).

— Vary noticeable up and down movements of the chest and abdomen. These indicate that much effort is being made by the body to get the oxygen it needs.

— Bluish colour, especially of the lips or finger nails.

— An anxious facial expression due to the effort made in trying to get enough air into the lungs.



Method of counting respiration:

i. Begin by continuing to hold the wrist after you have counted the pulse so that the person does not know that you are observing his respiration.

ii. Place the arm so that it lies across the chest. In such a position, it becomes easier for you to observe the extent of chest movements.

iii. Count the number of respirations observed for one minute using a watch with a second hand. Note the character of the respiration—deep or shallow, noisy or quiet.

iv. Record the rate and nature of the respiration on the patient's card.

Things to do

1. Take the rectal, axillary and groin temperature in the same child. Note the difference in the readings.

2. Practise feeling for and counting the pulse at the different sites mentioned.

3. Count the respiration rate in 10 normal newborns, 10 normal six-year-olds, and 10 normal adults. Note the range for each age group.

Hot and cold applications are useful home remedies.

People often use application of heat or cold to the body as part of self-treatment for various ailments, such as headaches, muscular aches, boils, or fever. These applications are very effective. But sometimes, tissues have been injured rather than healed because people did not know that certain precautions must be taken when heat or cold is applied to the body.

Cold compresses and cold sponging

Local applications of cold to the body are useful for treating:

— High or prolonged fever.

— Localized pain.

— Swelling due to bleeding such as in sprains and bruises.

— Control of bleeding such as nose bleeds and bleeding following tooth extraction.

Equipment and supplies needed:

— Container for water

— Cold water

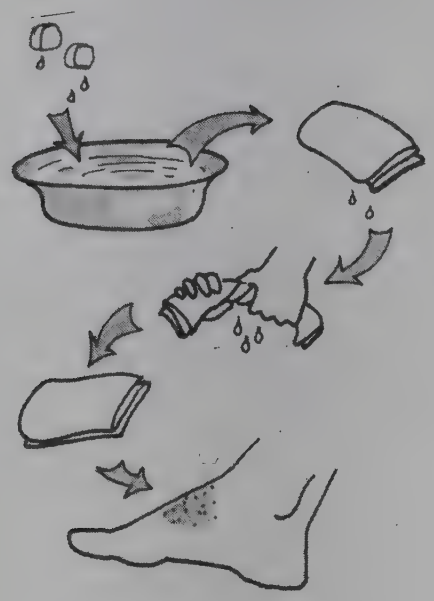
— Cloth large enough to cover the area to be treated (several thicknesses will be needed if the cloth is very thin).

Proceed as follows:

i. Explain to the patient or parent what you are going to do.

ii. Put the patient in a comfortable position:
— If for compresses, let him sit or lie down with the limb raised.
— If for sponging, let him lie down.

iii. Uncover the part of the body which is to be treated. If sponging, uncover one area at a time to avoid undue exposure.



iv. Wring out the cloth thoroughly before applying them to avoid dripping water over clothing or bedding.

v. Apply the cloth or compresses to the area being treated.

vi. Change the compress every few minutes as it becomes warm, or teach a family member or the patient how to do so.

vii. Continue applying compresses for 15 to 20 minutes.

viii. Sponging of the body for reducing fever should be continued for 25 to 30 minutes. The time is usually less for young children since they generally react quickly to heat and cold.

ix. When an adult is being sponged, each limb should be sponged with cold cloth for at least 5 minutes, and the back, buttocks and abdomen for 5 to 10 minutes. You may have to modify this depending on the person's tolerance to the sponging.

x. Place cool, moist cloth in the armpit and groin so as to cover the large superficial blood vessals. This will further help in lowering the body temperature.

xi. Keep a constant watch on the colour of the skin. Test the skin for numbness when cold applications are being used so that they can be stopped promptly if necessary.

xii. Record the treatment given, the results, and any instructions given for continuing the treatment. You should take the temperature of the patient following cold sponging to find out whether the fever has been reduced.

Points to remember about applying cold to the body:

* Make sure that the patient or his parent knows what you are going to do so that they can cooperate.

* Let the patient be in a comfortable position.

* If the compress is to be used repeatedly, cut or fold the cloth to fit the part, i.e. the eye or the ankle.

* Apply cold compresses without any covering to allow for better evaporation and cooling.

* Compresses must be repeated every few hours to be effective.

* Apply cold compresses only if the tissue has not been badly injured, or There is good circulation and no loss of sensation.

* Stop cold compresses or applications at once if the skin becomes blue or mottled, or if numbness or stiffness develops.

Hot fomentations and local hot baths

Local and general applications of heat to the body are useful for treating:

— Stiff, painful muscles.

— Localized infections or boils.

— Pain and swelling due to inflammation.

Equipment and supplies needed:

— Container for heating the water

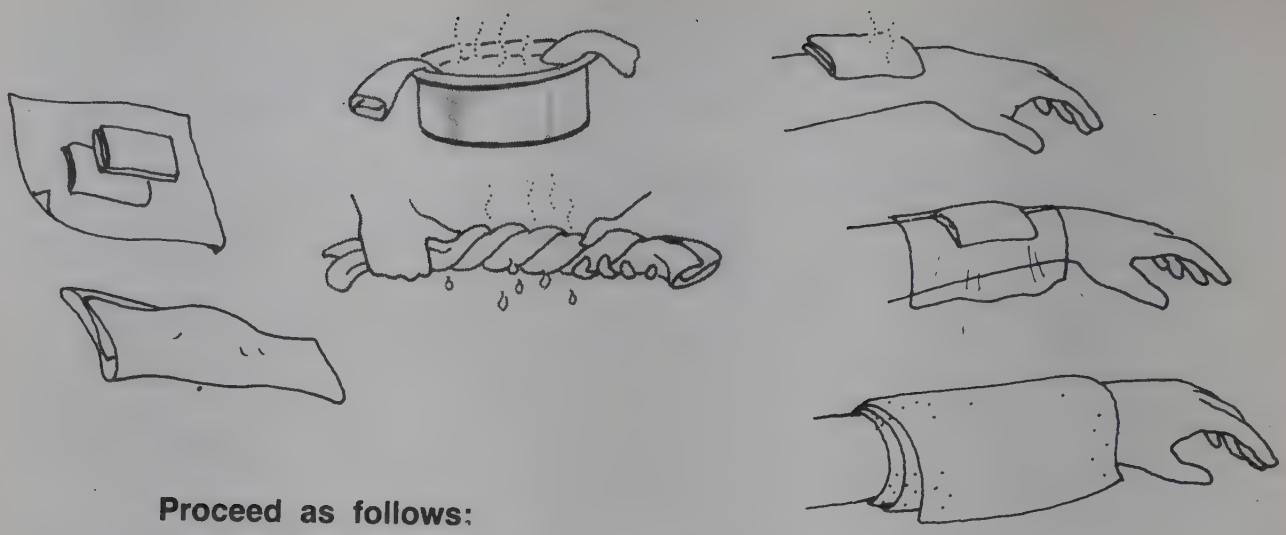
— Bowl or other container for moistening the cloth or dressings (if more than one patient is to be treated)

— Small cloth or dressings (flannel cloth if possible)

— Large cloth and towels

— Plastic or rubber sheet large enough to cover the compress

— Bucket or other container for soaking limb, finger or toe.



Proceed as follows:

— Explain to the patient or parent what you are going to do.

— Place the patient in a comfortable position.

— Uncover the part of the body which is to be treated.

1. If the fomentation is to be applied to **an area of unbroken skin:**

i. Place the small cloth or dressings on the large cloth and roll them together.

ii. Put the cloth in the bowl or other container and pour hot water over them until they are covered.

iii. Lift them up out of the water and wring them out thoroughly.

iv. Remove the small cloth or dressings from the large cloth and shake out the steam to cool them.

v. Test the temperature quickly on the back of your hand or arm.

vi. Apply the fomentation to the affected area. If it is too hot for the patient, lift it up to cool, then re-apply.

vii. Cover the fomentation with the plastic or rubber sheet and wrap the part in a towel to retain the heat.

viii. Keep the affected part raised.

ix. Change the fomentation when it becomes cold, usually in about 20 minutes.

x. Dry the area well after the fomentation is removed. Cover the area with a warm cloth to prevent chilling.

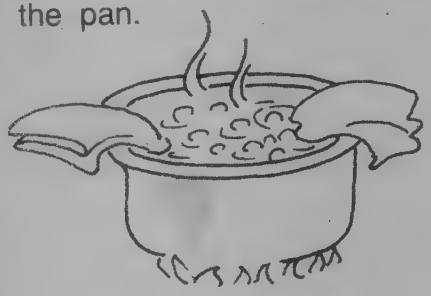
xi. Repeat the treatment as required, i.e. every two, three or four hours.

xii. Record when the fomentation was applied, the reaction to the treatment, and any instructions for continuing the applications.

2. If the fomentation is to be applied to **an open wound,** it is important to keep the procedure as sterile as possible. Do this as follows:

i. Place the small cloths or dressings on the large cloth.

ii. Place the cloth in a pan of water making sure that the ends of the outer large cloth extend over the edge of the pan.



iii. **Boil the cloths for 5 minutes.**

iv. Remove the cloths from the pan. Make sure that the inner cloths are completely covered by the outer cloth.

v. Lift them up out of the water. Wring them out thoroughly.

vi. Scrub your hands thoroughly. Pick up the inner cloth by holding them by the corners.

vii. Shake out the steam. Gently apply the fomentation to the wound.

viii. If it causes pain, lift it up by the corners for a second then replace it. Be careful not to touch the rest of the compress.
Steps ix to xi: Follow steps vii to ix as in 1 above.

xii. Air dry the wound area and re-apply a sterile dressing after the fomentation has been removed.
Steps xiii to xiv: Follow steps xi to xii as in 1 above.

3. If **a soaking** is to be done for any part of a limb which is infected:

i. Pour the hot water into the bucket or other available container.

ii. Test the temperature of the water by sprinkling some on to the inner side of your forearm. If necessary, pour in some cold water until the temperature becomes bearable.

iii. Help the patient to put the affected part in the container. Make sure that the temperature is not too hot for him.

iv. Keep the affected part in the hot water for 15 to 20 minutes.

v. Every five to ten minutes lift the affected part up out of the water. Add some hot water and stir to keep the temperature as constant as possible.

vi. Dry the affected area thoroughly after the treatment has been completed. Apply oil or cream to the skin and cover the part.

vii. Instruct the patient or parent to keep the affected area warm so as to retain the benefits of soaking.

viii. Record when and how long the treatment was given and the results in the patient's card.

4. In the case of muscular aches and pains, application of a hot water bottle is often effective. If a rubber hot water bottle is not available, you can use an ordinary bottle. In either case, make sure that:

* the bottle does not leak;

* the stopper fits well;

* the bottle is covered with a towel or other thick cloth before being applied to the body.

Points to remember about applying heat to the body:

* Make sure that the patient has no paralysis, numbness or loss of sensation, or poor circulation. These are contraindications to the application of heat to the body.

* Explain what you are going to do to gain the cooperation of the patient or parent.

* Put the patient in a comfortable position before beginning the procedure.

* If the fomentation is to be used repeatedly, cut or fold the cloth to fit the body part, i.e. the arm or the foot.

* If the area that is being treated is infected, be careful to sterilize the dressings, protect the uninfected areas, and dispose of soiled dressings or fomentations in a hygienic way.

* Carry out the procedure quickly including covering the fomentation to retain the heat.

* Stop fomentations or hot soaks if the skin becomes very red or mottled.

* Fomentations or soaking must be repeated at regular intervals to be effective.

* Cover the affected area, after treatment with heat applications, to retain the benefits of the procedure.

* If heat is applied to an area over a period of time, apply oil or cream to keep the skin in good condition.

Every person has a different level of tolerance for local applications of heat and cold. Some can tolerate higher or lower temperatures without any ill effects. Others may develop blisters, burns or numbness even when the temperature is within required limits.

Steam inhalations

Steam inhalations are useful:

— To reduce nasal congestion.

— To liquefy secretions in the throat.

Equipment and supplies needed:

— stove, fuel and matches

— Small degchi containing water

— Towel or cloth large enough to cover the person and the container of water

— Tincture benzoin co. **or** menthol and eucalyptus oil ointment.

Proceed as follows:

i. Explain to the patient or parent what you are going to do.

ii. Light the fire and place a degchi of water on it. Wait until the water begins to boil.

iii. Place the degchi on a table, box or bed and add a few drops of tincture benzoin co. **or** one teaspoonful of menthol and eucalyptus oil ointment to the hot water.

iv. If the patient is a child:
   — Ask the mother to sit close to the steaming container of water with the child in the lap. She should hold the child's arms and legs to prevent it from touching or upsetting the hot degchi.
   — Help the mother to cover the steaming container of water and the head of the child in her lap, using the towel or cloth to form a tent. She should sit like this for 10 minutes.
   — If the child becomes upset the improvised tent, the mother should lift up the towel for a while.
   — Help the mother to dry the child using the towel previously used as a tent.

If the patient is an adult:

— He should bend his head over the steaming container and cover his head and the container with the towel.
— He should inhale deeply for 10 minutes.

v. Note whether the patient is able to breathe more easily through his nose and whether his cough (if any) is less dry than before the treatment. Ask the mother to also note any changes observed later in her child.

vi. Make a note in your diary about the results.

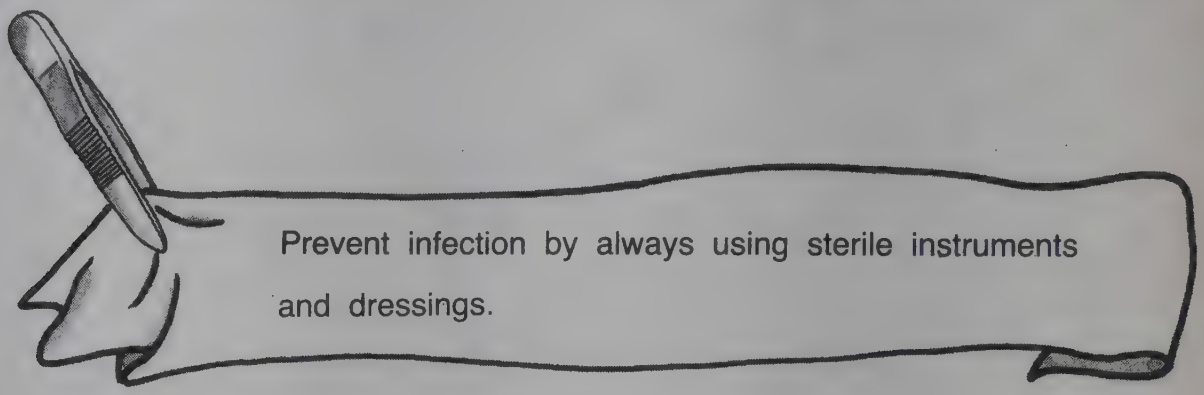
vii. If the treatment is to be repeated at home, instruct the patient or mother about the procedure. Tell them that the inhalation should be taken before meals.

Things to do

1. If you come across a case of fever on your home visits, demonstrate to the parent or spouse how to give a cold sponging. Observe how the person carries out your instructions.

2. During your home visits if you find a child with a boil, show the mother how to apply a hot fomentation. Tell her what precautions to take.

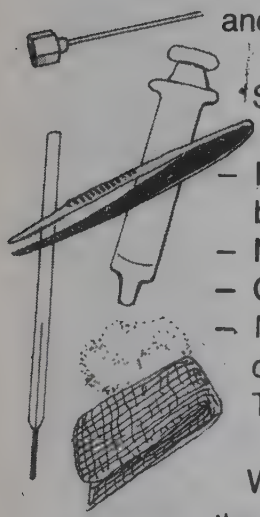
3. It may be difficult to give a small child a steam inhalation in the way described in this chapter. In an older child, you can make it into a game. Can you think of a simpler way in the case of a younger child?



Prevent infection by always using sterile instruments and dressings.

Articles that need to be sterilized

All articles used for carrying out any procedure in which (a) the skin is punctured or broken; or (b) the item is used on several patients; must be properly sterilized. This will prevent the introduction of infection into the body and the spread of disease from person to person.

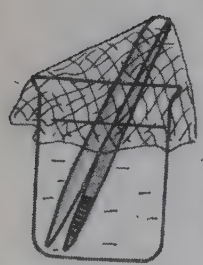


Such articles include:

- Hagedorn needles used for drawing blood from fever cases or for haemoglobin estimation;
- Needles and syringes used for administering BCG, DPT and other vaccines;
- Gauze, cotton wool and cloth used for dressing wounds;
- Metal instruments such as scalpels, scissors, or spoons used as tongue depressors;
- Thermometers.

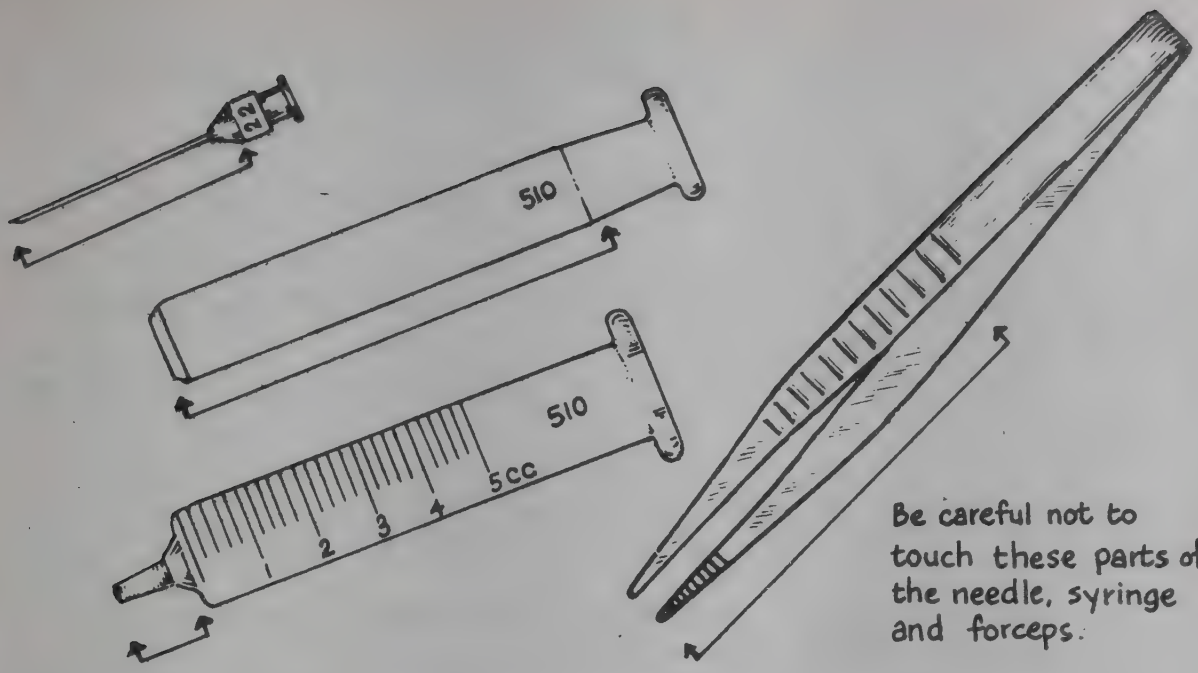
When antiseptic solutions are used for sterilizing articles, make sure that the container used for this is boiled regularly. Ensure that the solution is replaced with fresh solution at least once a week.

Preventing contamination of articles



You must prevent contamination of articles that have been sterilized while they are being removed from boiling water or antiseptic solution or are being reassembled for use. Wherever available, use a sterile forceps for handling articles which have been sterilized. Such forceps are kept immersed in an antiseptic solution in a container with only the handle exposed to the air.

If sterile forceps are not available, wash your hands with soap and water and handle sterile articles by picking them up with your fingers.



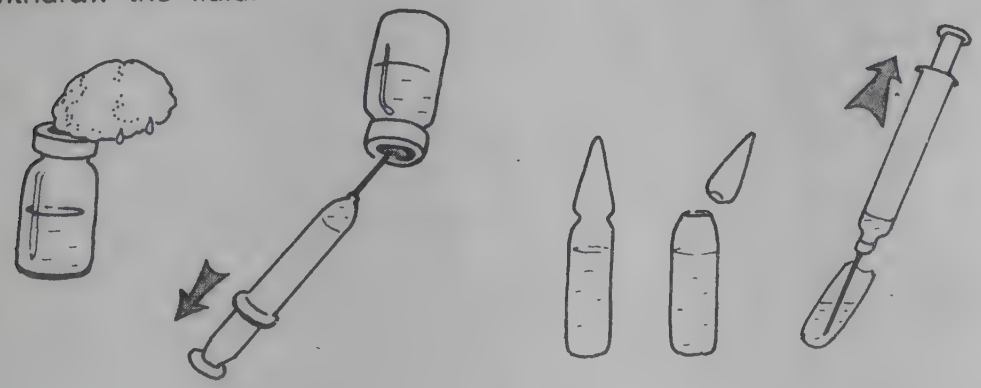
In order to prevent contamination of articles:

* Keep the vassel covered while pouring off the water used for boiling articles.
* Assemble syringes by touching only the outer surface of the barrel and the knob of the plunger.
* Handle only the hub of the needle when picking it up or twisting it on to the tip of the syringe.
* After assembling syringes, keep them covered, until they are used, in a container that has been boiled.

Preventing contamination when withdrawing drugs from vials or ampoules

You must also be careful in removing vaccines from vials or ampoules and in reconstituting them before use.

– Vaccines supplied in rubber-capped vials: Clean the sealed rubber cap on the vial thoroughly with a cotton swab moistened with water. After you have done this, insert a sterile needle attached to a syringe into the rubber cap to withdraw the fluid.



– Vaccines supplied in ampoules: After filing open the glass ampoule, take care not to introduce anything that is not sterile into the ampoule. Do not touch the edge of the glass with the sterile needle while inserting the needle into the ampoule.

Preparing the skin before puncture-type procedures

It is not possible to sterilize or disinfect the skin since heat and strong disinfectants are harmful to body tissues. As an alternative soap and water is applied to the skin to clean the area.

In cleaning the skin before pricking it, or giving an injection, remember the following:

* Avoid using skin areas that are irritated or infected.
* If the area is visibly contaminated, e.g. with dirt or faecal matter, wash the area with soap and water.
* Moisten a cotton swab with soap and water,. Wipe the skin with it using a circular motion to remove contamination.
* Begin the cleansing at the site for the procedure and move outwards. In this way contaminated material is taken away from the site which will be used for the procedure.

Procedure for sterilizing needles and syringes

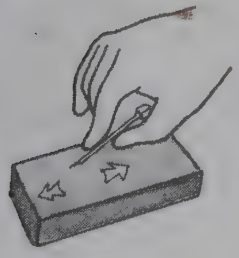
Equipment and supplies needed:

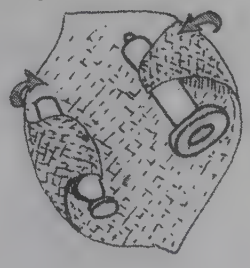
— Soap and water
— Fine bottle brush or container for soaking aricles
— Container with a cover
— Sharpening stone
— Pieces of gauze or cloth large enough for wrapping plunger and barrel of syringes and for covering the bottom of the container.
— Stove or chulha, fuel and matches.

Proceed as follows:

i. Draw up some water in a syringe and push enough through each needle to make sure that the needle is not blocked.

ii. Sharpen needles that are blunt or have developed hooks at the tips. Rub the tips on a sharpening stone carefully so as to preserve the bevel. Avoid pricking your finger with the needle. Infection can be transmitted in this way.





iii. Rinse the clean, sharpened needles with clean water.

iv. If the needles and syringes have been contaminated with blood, pus or dirt, take the syringes apart, and soak them in cold water immediately after use. Clean them with soap and water using a fine bottle brush, or soak them in soap and water.

v. Rinse with clean water.

vi. Wrap the corresponding barrel and plunger together in a piece of cloth taking care to see that they are not in direct contact with each other.

vii. Pin the needles on to a piece of gauze or cloth.

viii. Place the needles and syringes in the container. Pour in enough water to cover all the articles.

ix. Cover the container and place it on the fire to boil.

x. When the water is boiling (bubbles appear), note the time.

xi. Boil the contents of the container for 20 minutes.

xii. Remove the container from the fire and pour off the water, keeping the container partially covered.

xiii. Keep the container covered with the articles inside until they are to be used.

Procedure for sterilizing dressings and swabs (wet and dry methods)

For wet dressdings:

Equipment and supplies needed:

- Gauze or clean cloth of soft texture
- Scissors
- Container with cover
- Soap and water
- Stove or chulha, fuel and matches.

Proceed as follows:

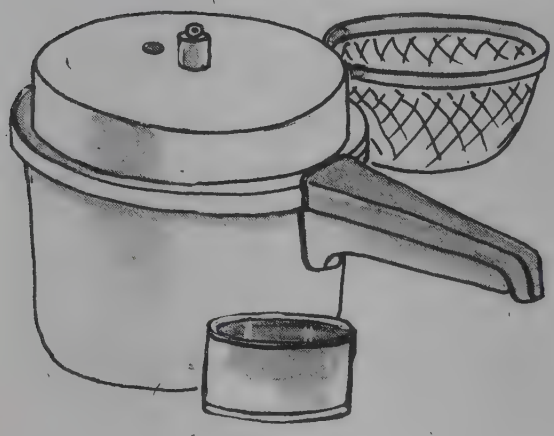
i. Wash your hands and the container to be used for sterilizing the articles.
ii. Cut and fold the cloth or gauze into sizes suitable for use.
iii. Place the dressings in the container.
iv. Pour in enough water to cover them completely.
v. Cover the container and place it on the fire.
vi. After the water begins to boil, let it boil for 20 minutes.
vii. Pour off the water from the container keeping the container partially covered.
viii. Keep the dressings and swabs in the container and keep it covered until they are to be used.

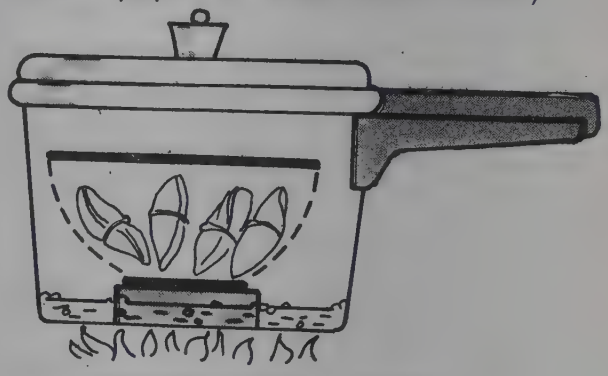
For dry dressings-Method using a pressure cooker:

Carefully read the instructions provided with the pressure cooker before using it.

Equipment and supplies needed:

- Complete pressure cooker unit large enough to hold the articles
- Metal perforated vessel, e.g. a household sieve, to fit inside the pressure cooker
- Metal stand to raise vessel above water level (you can use a tin with the top and bottom cut out so that it forms a ring)
- Soap and water
- Stove or chulha, fuel and matches
- Articles to be sterilized (wrapped in clean paper or close-woven cloth)
- Clean container with well-fitting lid.





Never attempt to remove or open the cover of a pressure cooker until the pressure has been released.

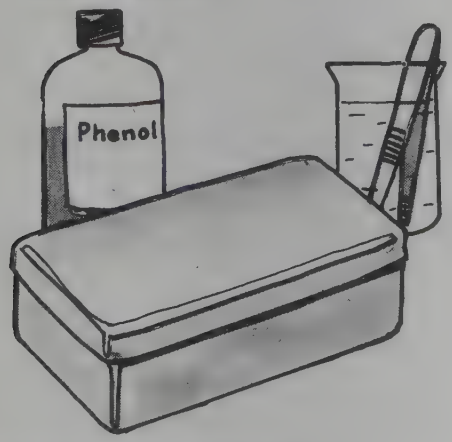
Proceed as follows:

i. Wash the pressure cooker and the metal perforated vessel. Dry the vessel.
ii. Pour water into the pressure cooker according to the instructions for use.
iii. Place the stand in the bottom of the cooker.
iv. Arrange the packets of dressings loosely in the perforated vessel and place it on the stand in the cooker.
v. Cover the cooker properly and place the weight on it according to the instructions provided with the cooker.
vi. Place the cooker on the fire. When the maximum pressure is reached (1 kg persq cm or 15 lb per sq inch), begin timing the procedure for 20 used,
vii. After 20 minutes remove the cooker from the fire. Do not remove the cover.
viii. After the pressure is released open the cooker.
ix. Leave the cover partially open and put out in the sun to dry. When wet spots are no longer visible, remove the sterile packets and store in a covered container.

Procedure for sterilizing metal instruments using chemicals

Equipment and supplies needed:

- Clean metal or glass container with well-fitting cover, large enough for immersing instruments
- Carbolic acid or phenol 5 per cent or 20 per cent solution
- Tissue forceps kept upright in an antiseptic lotion, e.g. Savlon solution (10 per cent)
- Soap and water
- Hand brush or soft clean cloth
- Boiled water.



Proceed as follows:

i. Wash the instruments thoroughly with soap and water usings the brush or cloth.
ii. Rinse well and dry them with a cloth.
iii. Place the instruments in the sterile container filled with the carbolic acid solution. Make sure that there is sufficient solution to cover them. Cover the container.
iv. Time the sterilization procedure as follows:
    - If carbolic acid *5 per cent solution* is used, one hour is required.
    - If carbolic acid *20 per cent solution* is used, 20 minutes are required.
v. Remove the sterilized articles from the container with a sterile forceps when they are needed.
vi Rinse in boiled water before use.

Procedure for disinfecting thermometers
Equipment and supplies needed:

- Clean metal or glass containers with lids or caps for storing thermometers
- Soap and water
- Cotton swabs or pieces of clean cloth.

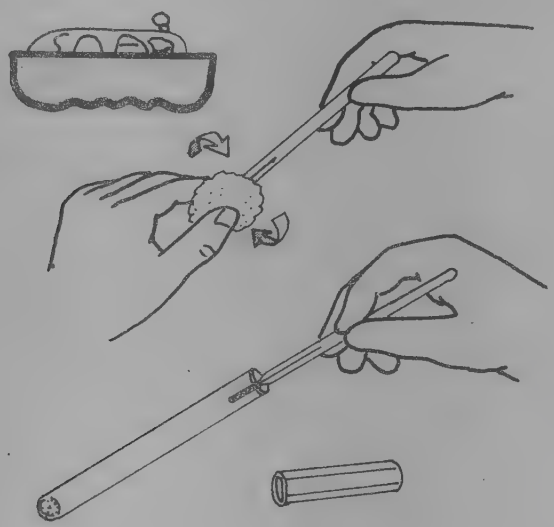
Proceed as follows:

i Inspect the thermometer to make sure that it is not broken or cracked. Discard it if this is so.

ii. Use a cotton swab or cloth moistened with soap and water for cleaning the thermometer. Use friction for doing this, begining at the bulb end and working towards the tip end.

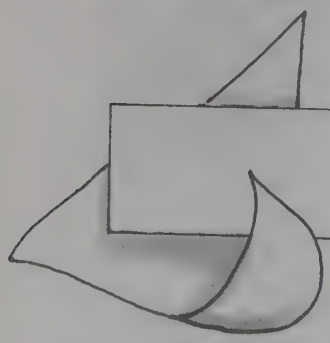
iii. Rinse with clean, cold water and dry, using the swabs or cloth.

iv. Hold the tip end of the thermometer and replace it in the clean, dry container with the bulb end down. It is ready for use.



Things to do

1. Before and during the clinics held at the Subcentre, help the HWF in preparing and sterilizing instruments, syringes, needles and dressings.
2. Observe how the HWF sterilizes plastic items, e.g. Lippes loops and inserters.



Bandaging cannot be learnt from books but only from constant practice.

Procedure for making cotton stick swabs

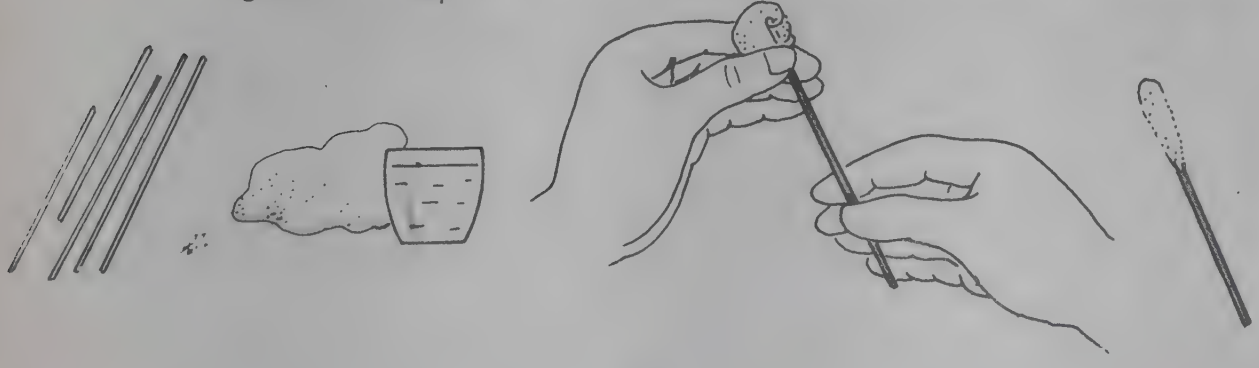
You will require cotton stick swabs to clean an ear before medication, or to apply gentian violet. If you do not have stick swabs in your kit, you will have to prepare them when necessary.

Supplies and equipment needed:

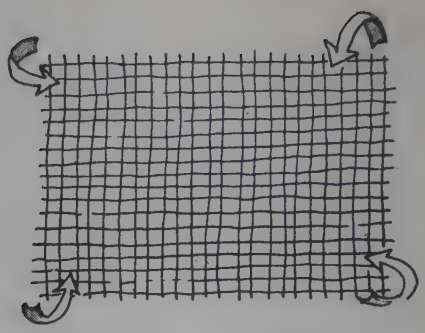
- Clean cotton wool
- Clean thin wooden sticks, bamboo stems, or matchsticks
- Blade or knife
- Small container holding clean water.

Proceed as follows:

i. Use a clean surface and spread a clean cloth or paper on it.
ii. Cut the sticks to an appropriate length.
iii. Place the cotton wool next to the pile of sticks on the clean surface.
iv. Dip one end of a stick into the water to moisten it.
v. Pass the moistened end of the stick over the cotton wool to catch a wisp on to the tip of it.
vi. Hold the stick with one hand and twist the portion with the cotton on it between the thumb and forefinger of the other hand to make a firm cotton tipped stick swab.
vii. The stick swab is now ready for use.
viii. If sterile stick swabs are required, follow the procedure for sterilization given in Chapter 21.

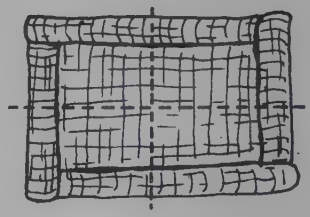


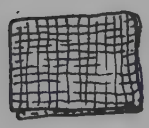
Procedure for making dressings



Supplies and equipment needed:

- Gauze or clean old cloth
- Scissors
- Clean cloth or paper
- Container with a cover.





Proceed as follows:

i. Prepars a clean working surface.
ii. Place the materials on the clean surface.
iii. Cut or tear the cloth into pieces which are about four times the size required.
iv. Fold all four raw edges towards the centre. Then fold the whole into the required size.
v. Put the dressings into the container with a cover, or wrap them in cloth or paper. Mark the wrappers and the container as to the size of the dressings.
vi. Sterilize and store.

Procedure for dressing wounds

Equipment and supplies needed:

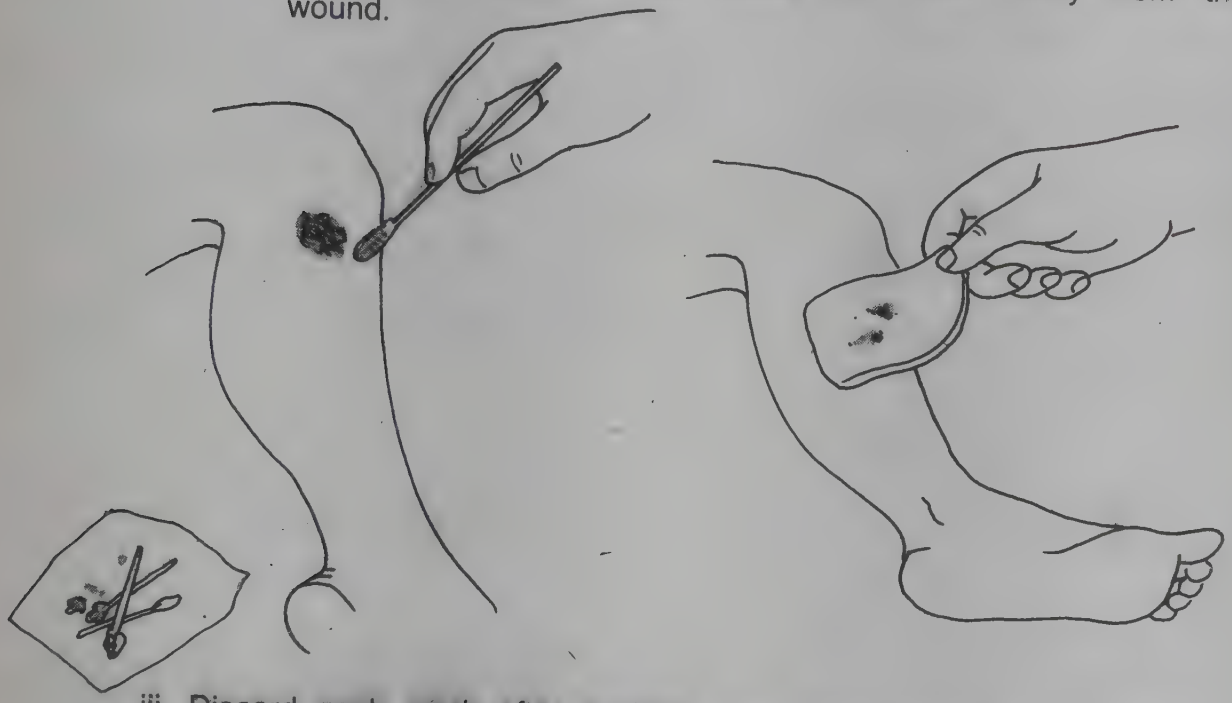
- Soap and water
- Sterile dry dressings large enough to cover the wound
- Sterile cotton wool swabs or stick swabs
- Sterile forceps
- Antiseptic or soap and water for cleaning the wound
- Medication to be applied to the wound
- Paper or container for disposing of soiled swabs and dressings.

Proceed as follows:

i. **If the wound is a** *fresh, clean one:*
   - Wash your hands well with soap and water.
   - Hold the sterile cotton swabs with sterile forceps or your fingers. If stick swabs are used take care not to touch the cotton tipped end.
   - Moisten the swabs with soap and cool, boiled water.
   - Remove dirt, dried blood and foreign matter using the swabs. Begin cleaning from the centre and work away from the wound.

ii. If the wound is *infected and discharging*:

- Remove the soiled dressing by picking it up at the corners. Be careful to avoid touching other portions.
- Wash your hands with soap and water.
- Remove the swabs from the wrappings or the container.
- Moisten the swabs with soap and boiled water or antiseptic.
- Remove dirt, dried blood and foreign matter using the swabs. Begin cleaning from the centre and work away from the wound.



iii. Discard each swab after a single use. Wrap soiled swabs in paper or place in a separate container.

iv. Apply the prescribed medication to the wound using the swabs or stick swabs. Discard after a single use.

v. Pick up the sterile dressing by the corner and apply it to the wound.

vi. Apply a bandage to keep the dressing in place.

vii. Burn or bury the soiled dressings and swabs.

viii. Record the size and appearance of the wound, the amount of discharge observed or reported by the patient, and the name of the medication applied to the wound, in the patient's health card.

Bandaqing

A bandage is usually made of soft cloth or gauze. It is used:

- To keep a dressing in place.
- To reduce movement of a joint.

– To prevent or limit swelling.
– To immobilize a limb.
– To retain a splint in position.
– To serve as an improvised tourniquet.

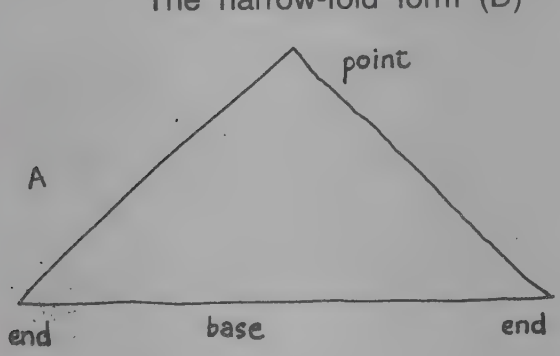
Bandages can be improvised by using any soft, clean pieces of cotton cloth such as a handkerchief, a towel or pieces of sheeting. Bandages may be either triangular or long strips.

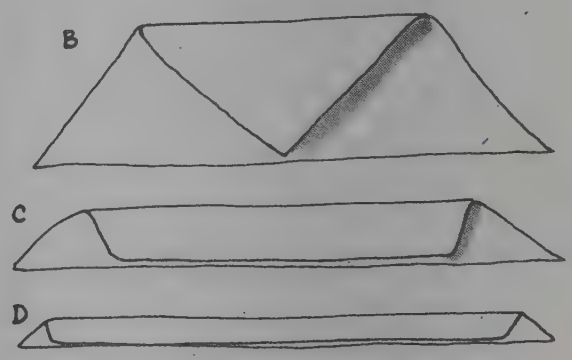
The triangular bandage

The triangular bandage is made of cotton and is usually used:

– in first aid for retaining a dressing, as a tourniquet, to tie on a splint, to hold the lower limbs together, or as a pad;
– as a sling, when the upper limb is to be rested because of an injury or infection.

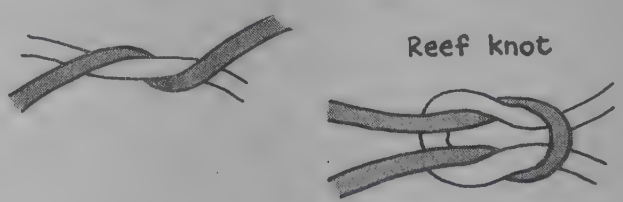
The triangular bandage can be used in three forms:
*The triangular form (A)
*The broad-fold form (B)
*The narrow-fold form (D)





The way in which the bandage is used depends on the reason for using it and in which of the forms it is most convenient to use.

You must always make sure that the knot used in tying a bandage is secure and will not slip. The knot used is the 'Reef Knot' because the more it is tightened, the more secure it becomes. It can easily be undone if you want to undo the knot without damaging the bandage.



Remember that the knot must always be tied away from the injury so that it will not hurt.

Some uses of the tirangular bandage:

1. **The large arm sling:** This is used for support is in most cases of injury to the arm, hand or fingers.

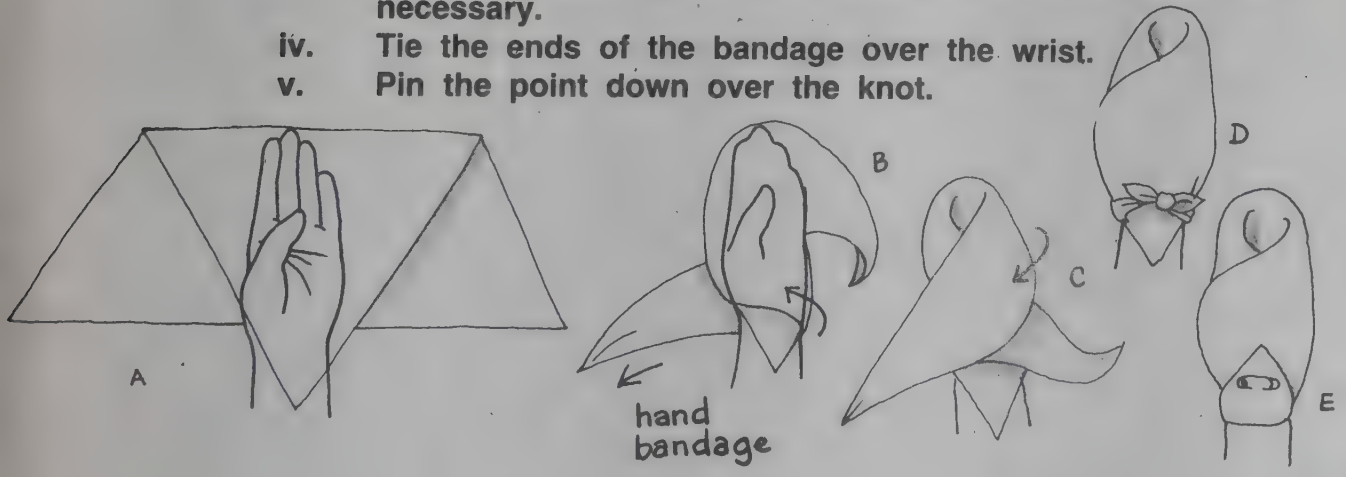
Method:

i. Place the open bandage on the chest so that one end is long enough to pass round the neck to the injured side, and the point of the triangle passes behind the elbow.
ii. Bend the arm so that the hand is higher than the elbow.
iii. Bring the lower end of the bandage up to tie in front of the injured side. See that the knot is in front and not on the back of the neck.
iv. Bring the point forward, turn it in if necessary, and pin neatly in front.

2. **The hand bandage:** This is used for retaining hand dressings.

Method:

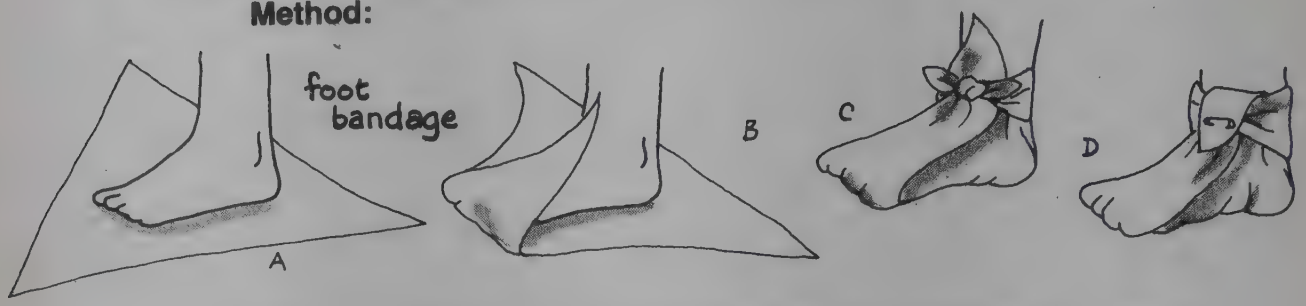
i. **Place the hand on the open bandage with the fingers towards the point.**
ii. **Bring the point down over the hand above the wrist.**
iii. **Cross the ends round the wrist two or three times as necessary.**
iv. **Tie the ends of the bandage over the wrist.**
v. **Pin the point down over the knot.**



Caution: Make sure that the knot over the wrist is not so tight that it will obstruct the pulse.

3. **The foot bandages:** This is used to retain dressings on the foot.

Method:

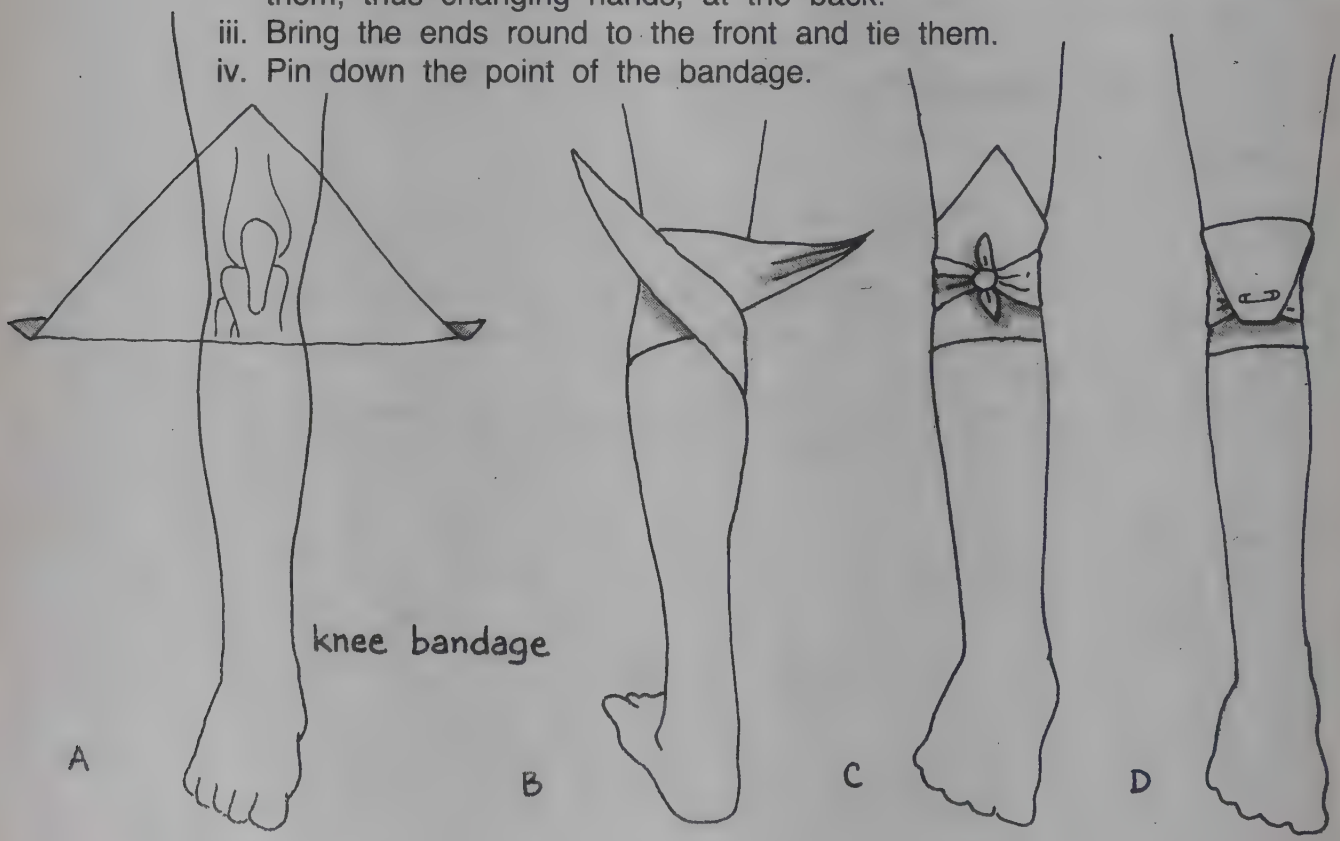


i. Place the foot on an open bandage, toes towards the point.
ii. Bring the point up to the ankle.
iii. Cross the ends round the ankle and tie the ends in front of the ankle.
iv. Pin the point down over the knot.

4. **Joint bandaging:** The method of using the open triangular bandage is essentially the same for every joint. It is used to retain dressings, where a roller bandage would be bulky and uncomfortable.

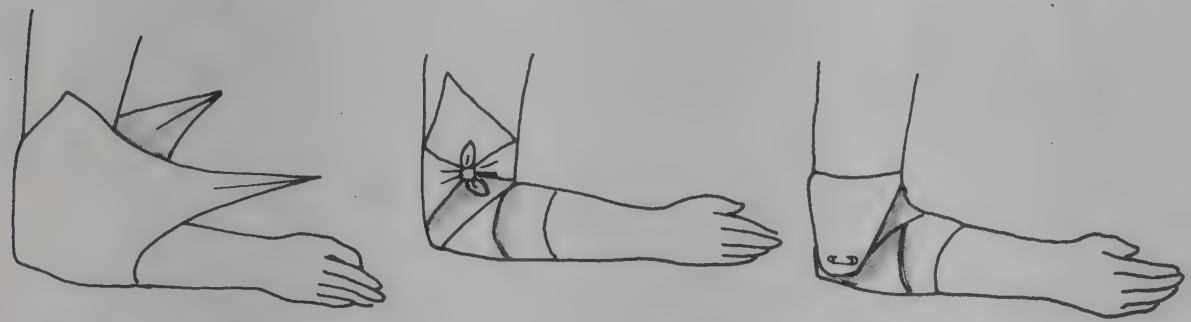
Method:

i. Apply the triangular bandage to the part, point uppermost. Adjust the size by folding up the base as necessary.
ii. Take the ends in each hand and carry them round behind the part, Cross them, thus changing hands, at the back.
iii. Bring the ends round to the front and tie them.
iv. Pin down the point of the bandage.



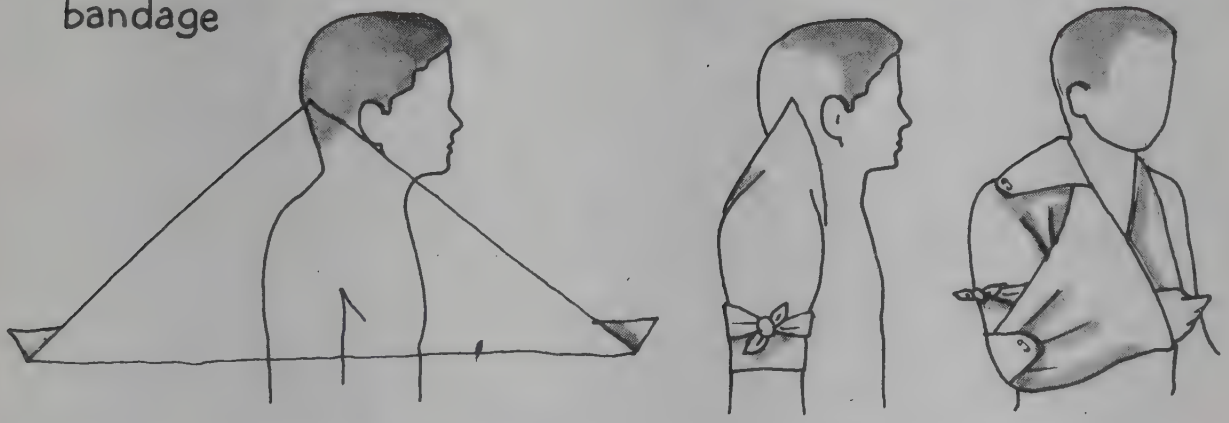
The same method is used for bandaging the knee, elbow, shoulder and hip.

The **shoulder bandage** is kept in position by a sling, which may be either an open or broad-fold triangular bandage.



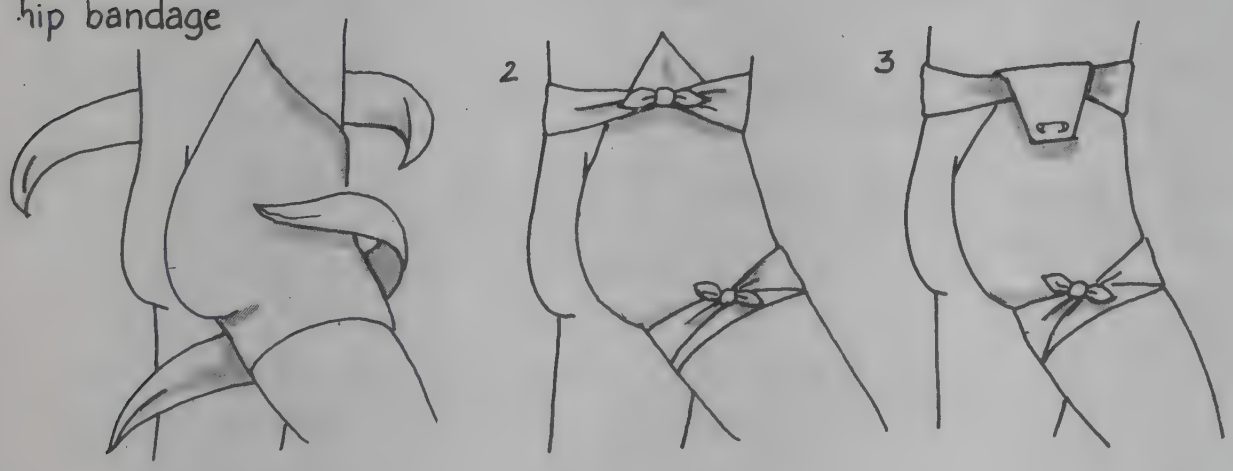
elbow bandage

shoulder bandage

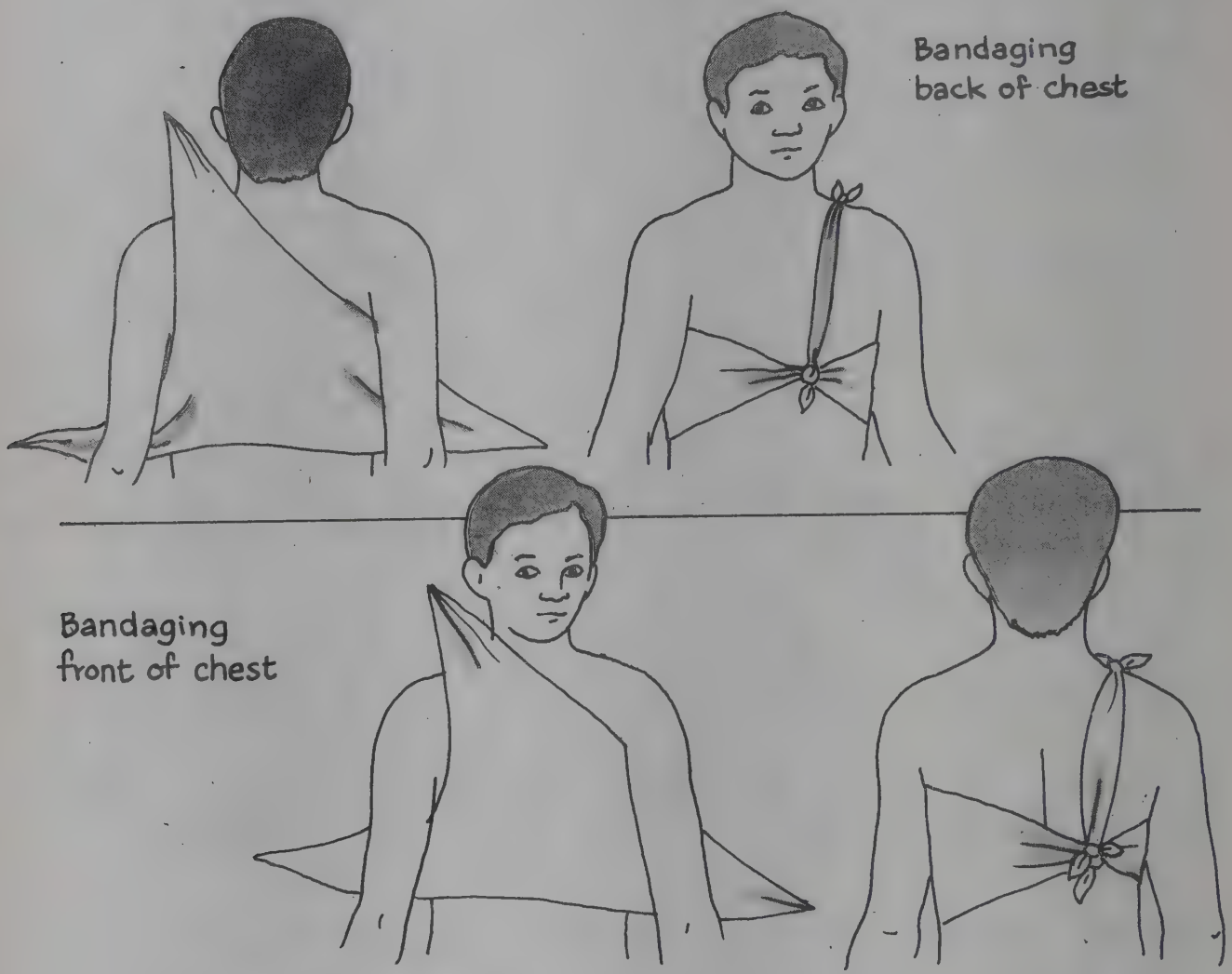


The **hip bandage** *bandage* is kept in place by a narrow-fold triangular bandage.

hip bandage



5. **Bandage for the chest:**This bandage is used for retaining dressings which cover an extensive part of the chest, e.g. in case of burns. It consists of an open triangular bandage and a narrow-fold bandage. The narrow-fold traingular bandage is used to keep the open triangular bandage in position.



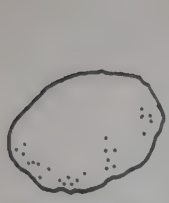
6. **Scalp bandage:**This bandage is used for retaining a dressing on the scalp.

Method:

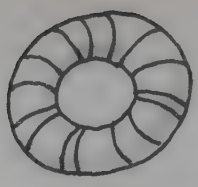
i. Apply the dressing and keep it in place with a ring pad.

ii. Stand in front of the patient and apply the triangular bandage to the head so that the point hangs down at the back of the neck, and the base comes on to the forehead. Fold in the base if necessary.

iii. Carry the ends round the head, to cross below the back of the head, and take back to the front to tie off at the front. Fold the point up on the head and pin.



dressing



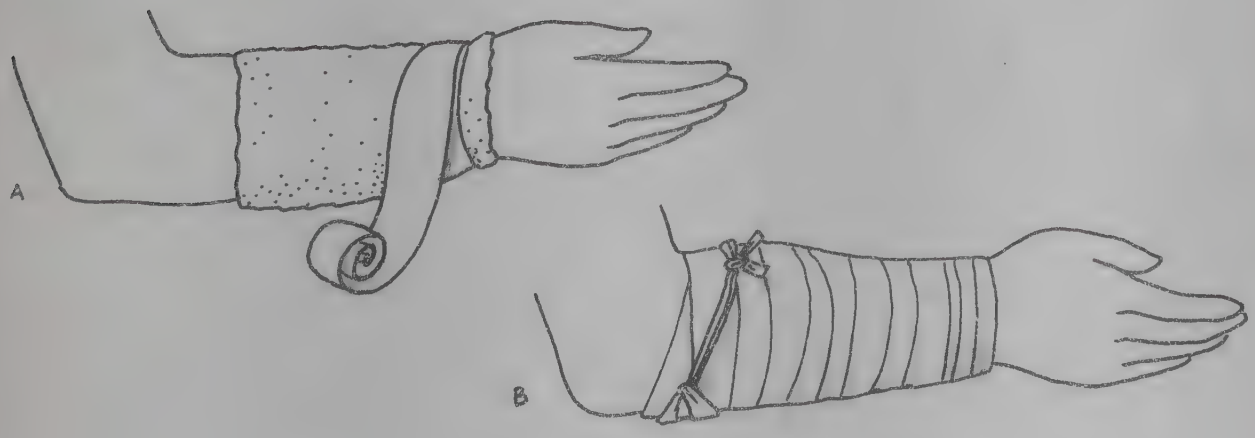
ring pad

scalp bandage

The roller bandage

The roller bandage is used to keep on a dressing. The bandage is usually 2.5 cm, 3.5 cm, 6 cm, or 7.5 cm wide, the common size being 6 cm. Although bandaging can be learnt only by practice, remember these general rules:

* To begin with, the bandage must be rolled tightly before you start using it.
* When you start the bandaging, make two or three turns on top- of each other. This fixes the end of the bandage firmly.
* When bandaging a limb, always start from below and work your way upwards.

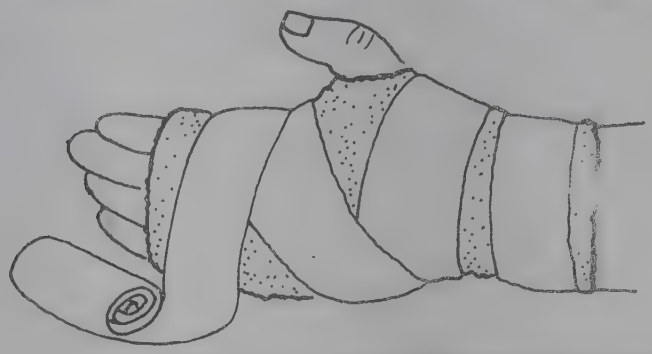


A

B

* Cover the tips of toes or fingers only when they are injured. Otrherwise leave them uncovered so that you can see the flow of blood and make sure that the bandage is not too tight.

* Learn how to make a 'figure of eight' when bandaging a joint.



Things to do

1. Always ensure that your kit contains:

—a triangular bandage

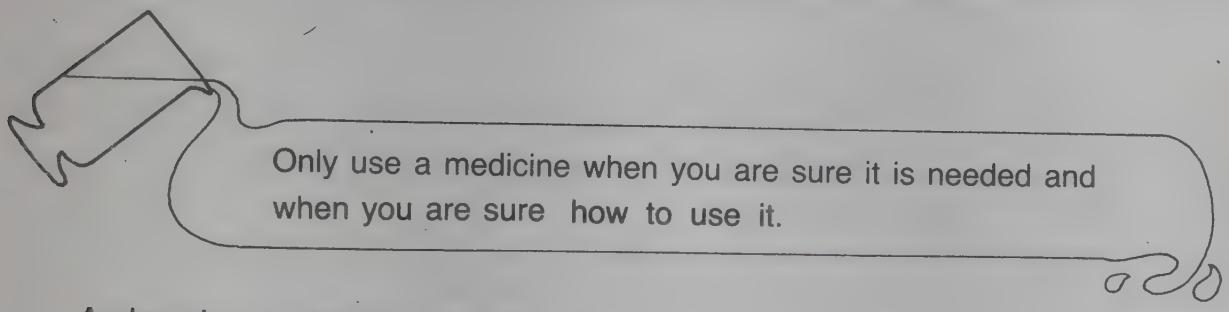
—roller bandages of different sizes

—sterile gauze

—cotton wool.

2. Practise bandaging various parts of the body using a triangular bandage and a 6 cm rller bandage.

3. Teach others in the community—Health Guides, School teachers, anganwadi workers, school children—how to dress and bandage wounds.



A drug is a substance which is used:

— to prevent illness

— to treat illness

— to restore body functions

In India there has been a long tradition of using various locally available substances, mostly of vegetable origin, for the treatment of symptoms or disease. Some of these substances are very effective.

The durgs that you will be responsible for dispensing will be in various forms such as pills, liquids, ointments or injectable solutions. Each drug will have to be administered by the prescribed route. You may need to prepare certain medicines yourself, such as Oral Rehydration Salt Solution, or gentian ointment.

A Guide for the Use and Administration of Drugs is included at Annexure 23.1.

What you should know about drugs

* Drugs are very useful. But they can also be dangerous if they are not administered properly.

* Drugs or medicines by themselves do not cure disease, but they help the body cells to fight disease.

* There is a maximum dose for each drug. This is the greast amount of the drug that can be given at any one time to a person without causing any ill effects.

* Drugs can produce the following effects:

- **Therapeutic effects:** A drug can act selectively on an organ, on body tissues, or on disease-causing organisms, and restore normal body function.

- **Side-effects:** In addition to its therapeutic effect, a drug may also produce unwated effects. For example, some oral contraceptives suppress ovulation, but they also cause nausea or vomiting.

- **Allergic effects:** If a person has an allergy to a drug, or is very sensitive to it, he may show unexpected reactions when he is given the drug, e.g. itching or vomiting.

Action of drugs in the body

The action of a drug depends on the following:

- The dose: Too little of the drug will make it ineffective. An overdose can be fatal.

- Age and body weight: Children and old persons are more sensitive to drugs. They, therefore, require a smaller dose than others. The ratio of body weight to the amount of the drug determines the level of concentration of the drug in the body. This means that the dose has to be adjusted for a person who is very thin or very obese.

- The route for administering the drug: A drug that is given by injection has a much more rapid effect than one that is given by mouth.

- The time of administration: A drug is absorbed more slowly if it is taken after a meal. Drugs that are irritating to the stomach are often given with or directly after meals.

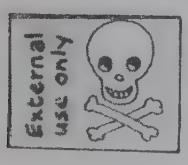
- Presence of diarrhoea and vomiting: These symptoms interfere with drug absorption. The drug is rapidly expelled before it can be absorbed by the body.

- Technique of administration: For optimal drug absorption and effect, the drug must be administered by the correct route and technique. Certain drugs may be ineffective or dangerous if given by the wrong route.

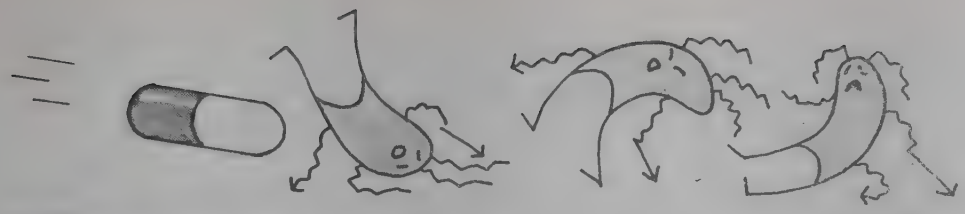
- Sensitivity or allergy: Some people are sensitive or allergic to drugs. They react to drugs in a different way than others do.

Classification of drugs

The drugs which you will use can be grouped according to their actions:



1. **Antiseptics and disinfectants** kill germs by poisoning them directly. Most of these disinfectants and antiseptics are poisonous if taken internally. These include Boric acid, Zinc sulfate (eye drops), Acriflavine, Tincture iodine, Savlon, Dettol, Methylated spirit, Carbolic acid, and Lysol.



2. **Antibacterials** are given by mouth or by injection and remove infection by killing germs responsible for particular infections. Such drugs include Sulphadimidine, Phthalyl sulphathiazole, Chloroquine, and Dapsone.

3. **Anthelminthics** (worm medicines) kill worms or make them lose their hold on the intestines so that they can be easily purged out. Anthelminthics include Piperazine, Bephenium hydroxynaphthoate, and Mebendazole.

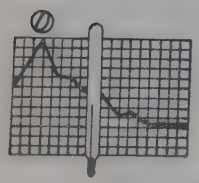
4. **Expectorants** help in coughing up mucus and phlegm (sputum) from the lungs and bronchi. You will be supplied with a standard expectorant mixture.

5. **Cough mixtures** suppress coughing by reducing the irritation of the throat. You will be supplied with a standard cough mixture.

6. **Laxatives and purgatives** make the bowels move. A laxative is milder than a purgative. The later is given when the bowels have not moved for several days. Laxatives include Milk of magnesia and Liquid paraffin. Purgatives include Castor oil and Magnesium sulphate (Epsom salts).

7. **Drugs for diarrhoea** act by making the stool more solid or disinfect the bowel. They include Kaolin pectin suspension and Phthalyl sulphathiazole.

8. **Analgesics** are drugs that soothe or relieve pain or cause sleep. The common analgesic in use is Acetyl Salicylic acid.



9. **Antipyretics** help to bring down the temperature. They are therefore useful if a patient has fever. They are usually given with other specific drugs. For example, in malaria both chloroquine (specific antimalarial drug) and paracetamol (antipyretic) are given to the patient. Antipyretics include Paracetamol and Acetyl salicylic acid.

Note: Acetyl salicylic acid should not be given to infants.

10. **Antihistamines** are given internally or applied to the skin when the patient has an allergic reaction to a drug, food, plant, or insect bite. Antihistamines include Mepyramine tablets and Calamine lotion.

11. **Tonics** are drugs which are taken to strengthen the body and to treat nutritional deficiencies. The commonest tonics in use include Iron preparations, Shark liver oil, Yeast, and Vitamin preparations.

12. **Applications for the skin and mucous membrane** include ointments, lotions, and liniments. They are often poisonous and should never be taken by mouth or given in any other way except by rubbing on or applying to the skin or mucous membrance. Skin applications include: Boric acid ointment, Whitfield ointment, Zinc Boric dusting powder, Benzyl benzoate emulsion, Calamine lotion, Methyl salicylate liniment, and Tincture iodine. Applications for the mucous memberanes include Gentian violet solution, Tetracycline eye ointment., and Chloromycetin Aplicaps.

Forms of drugs

As you examine the drugs in your kit and the stock supplies at the Subcentre, you will note that they have been prepared in a variety of forms and packings. The label on each of the containers will also be clearly marked showing:

- whether the drug is for internal use or only for external use;

- whether solutions or ointments are for the eye, ear, nose, or skin.

The usual forms in which the drugs that you will be using are prepared, are as follows:

* Capsules, tablets or pills.

capsules

tablets

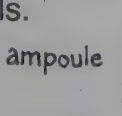
pills

* Ointments, pastes, creams or jellies.
* Liquids: - mixtures which are taken internally

liquids - lotions, suspensions and emulsions which are used externally

- liniments which are used externally.

* Injectable drugs in powder or liquid form which are in sealed glass ampoules or in multiple-dose rubber-capped vials.


ampoule

rubber-capped vial

* Powders.

powder

* Suppositories.

suppositories

Equipment for measuring drugs

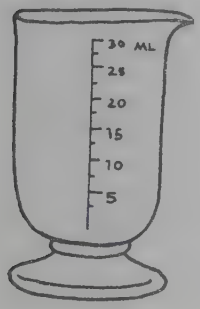
It is important to use the proper equipment for measuring drugs to ensure that the dosage dispensed is accurate. You must always use the equipment properly, keep it clean, and get replacements as needed.

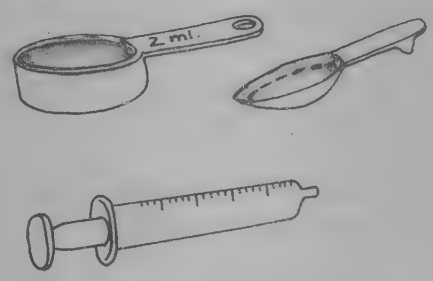
Basic equipment includes:

* A medicine glass for measuring liquid drugs.

* Medicine droppers. If a drug is to be administered or dispensed [illegible] or number of drops or millilitres (ml), you must use a calibrated dropper

*Spoons for measuring and demonstrating to parents and patients the dosage of the drug to be taken.





* Syringes with calibrations in millilitres (ml), used for measuring the prescribed amount of vaccines for immunizations.

Routes for administering drugs

Drugs can be administered as follows:

— By mouth.

— **Injection:** This includes the various techniques using needle and syringe, e.g. intradetmal, subcutaneous or intramuscular injections.

— **Local application:**The drug is applied to the skin or mucous membrane, e.g. an ointment applied locally to the skin, or gentian violet solution painted on the inside of the mouth.

— **Instillation:** The drug, usually in liquid form, is put into a body cavity or opening such as the nose or ear.

— **Insertion:** Drugs, usually incorporated in a jelly, tablet, or suppository, are put into a body opening such as the vagina or rectum.

Rules for administering drugs

The dispensing of drugs is a very responsible task. Do not take it lightly. Accuracy in administering a drug is vital for its effectiveness. Errors in the administration of drugs can have serious consequences.

Before giving any durg, you should **know** :

* What the drug is used for

* What it can do

* The prescribed dose for a child or adult

* How it should be given

* The possible side-effects and precautions to be taken

* What the user of the drug needs to know about it.

Before you use a drug, read the label on the drug container. Go through any literature provided. Note the **following** :

— The name of the drug.

— The strength or dose of the drug, i.e. the quantity to be given in terms of number of tablets or capsules, number of teaspoons of mixture, or number of ml for injection.

— The route of administration, i.e. into the eye, by mouth, etc.

— The method of administration, i.e. by intramuscular injection, by painting on the skin, etc.

Always identify a drug by reading the label and not by its place on the shelf, its shape, its colour or its smell.

Do not prescribe drugs beyond those provided to your Subcentre.

If you have any doubts about administering a drug, consult your supervisor.

Follow these rules in administering any drug:

* Always see that the drugs at the Subcentre and in your kit are **labelled.** Do not use drugs without labels. Do not transfer drugs to containers with the old labels still on.

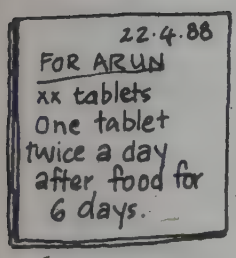
* **Select the correct drug** for the symptoms that the patient has. Always read the label on the drug container as it is taken from your kit or shelf.

* Make sure that the dose measured is the **correct dose** for an infant, a child, or an adult.

* Administer the drug by the **right route.** Before Administering a drug, check how the drug is to be given, i.e. orally, by injection, etc.

* Administer the drug to the **right patient.** Make sure that the drug is given to the person who needs it. Instruct a responsible family member to continue the treatment.

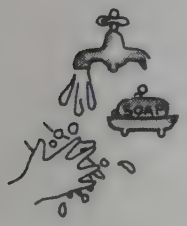
* Give the drug for the **correct number of days.** Tell the patient or a responsible family member how long the drug is to be continued. This is important because for some ailments the drug must be continued for a specified period in order to be effective.



Instruct the patient or responsible member of the family about **how and when** the drug is to be taken and **how much** is to be taken. Ask them to repeat the instructions that have been given to check that they have understood them. They should also be asked to tell you promptly if the patient has any unexpected reactions to the drug.

Procedure for dispensing oral drugs

There are several precautions to be taken in giving oral drugs:

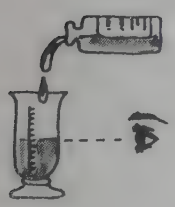


* Wash your hands before handling drugs. Avoid handling pills, capsules and tablets with the fingers. Use a spoon or the cap of the container to transfer the drugs.

* Shake liquids and make sure that the drug is evenly distributed throughout. Sometimes a medicine forms a residue at the bottom or top of the container after it has been left on the shelf for some time. If it is taken all at once, it may be harmful to the patient.

* Supply the drug to the patient in a clean container. Use clean paper or cloth for warpping tablets, capsules and powders.

* Read the label on the drug container care fully before dispensing the drug.



* Use a medicine glass or teaspoon to make sure that the correct dose is dispensed. This should be carried out at eye level.

* Pour out liquid drugs from the side of the container away from the label. This will avoid staining the label and making it illegible. Wax the label with a piece of candle. This will keep the label legible.

* You can disguise disagreeable taste by mixing the drug with sugar, honey, or jaggery, especially for children. Avoid mixing medicines with food.

* For children give drugs slowly to avoid choking. Never pinch the nose while giving them medicine because the drug may be breathed into the lung. If the child will not open his mouth, press the cheeks or press the chin down.

* Explain to the patient or a responsible member of the family how to take or give the drug. Give the initial dose to the patient demonstrating how to use common utensils that the person has at home.

* Check whether the individual understands the instructions for taking the drug. Ask the patient or a responsible member of the family to repeat the directions that you have given.

* Never give medicines from containers that:—

—do not have any labels on them;

—have illegible labels on them;

* Do not dispense any drugs which show changes in colour, consistency or smell.

* In order to reduce the chances of error:

— Store drugs for external use separately from those that are used internally.

— Mark eye, ear and nose drop containers clearly.

— Keep all drugs locked and out of the reach of children.

Administering eye, ear and nose drops or ointments

The presence of pus, discharge or crusts can interfere with the effectiveness of the drug. These discharges must, therefore, be removed before any drug is applied. This can be done using cotton wool swabs and cool, boiled water containing salt (a pinch of salt to one glass of water).

Procedure for administering eye drops or eye ointment:

i. Wash your hands

ii. Ask the patient to turn his head to the side of the eye being medicated so that any discharge will flow away from the nose.

iii. Open the eye and pour saline into it.

iv. Swab the eye by starting from the nose and wiping towards the side of the face.

Wash open eye with saline water

Dry shut eye with clean swab, moving outward from side of nose.

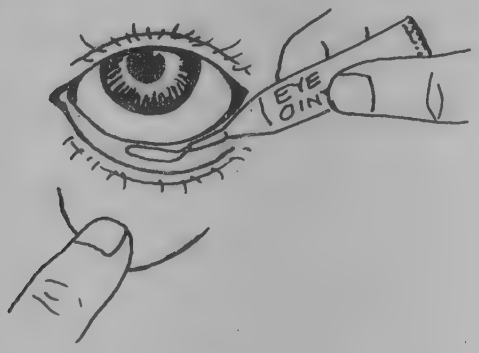
v. Discard the swab after one use.

vi. Repeat the procedure for the other eye. Always swab the normal eye before the infected eye.

vii. Ask the patient to bend his head backwards and look upwards.

viii. Hold the dropper containing the eye drops or the tube containing the ointment horizontally while resting your hand on the check.

ix. Pull down the lower eyelid away from the eyeball.



x. Instil the drops in the lower eyelid or squeeze out about 1 cm of ointment inside the lower eyelid. Take care to avoid touching the eyelid with the tip of the eye dropper or tip of the tube of ointment.

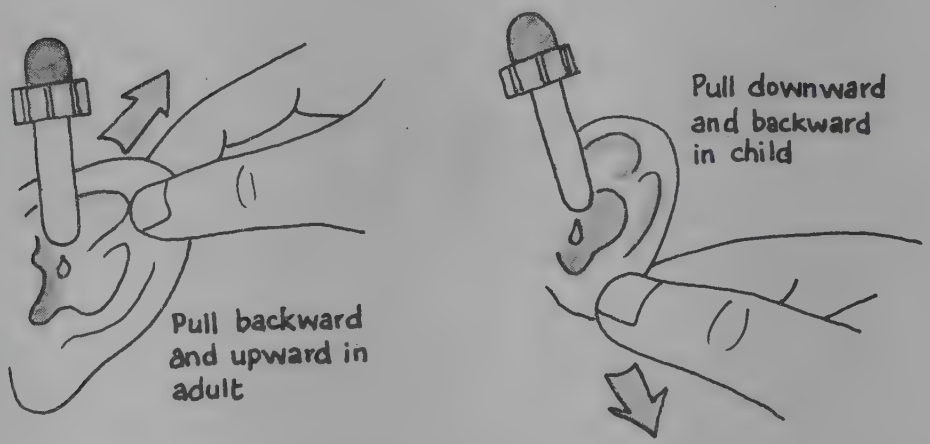
xi. Ask the patient to close his eyes lightly so that the drug is evenly distributed over the eye. Wipe off any excess.

xii. If there is any eye infection **do not apply a pad and bandage.** Cover the eye with a green shade.

xiii. Instruct the patient or parent how to clean the eyes and how to apply the drug at home. Stress the need to avoid rubbing the eyes.

xiv. Record the amount and name of the drug administered in the patient's health card.

Procedure for administering ear drops:



i. Place the patient so that the affected ear is above the level of the opposite ear.

ii. Use a small stick swab or twist a piece of cotton wool to make a firm wick. Moisten this with cool boiled water and use it to clean the ear of any discharge.

iii. To straighten the ear canal, pull the ear gently backward and upward in an adult, or gently backward and downward in a child.

iv. Use a stick swab or wick after a single use.

v. Discard the swab or wick after a single use.

vi. Instil ear drops as prescribed and plug the ear loosely with a piece of cotton wool to keep out dust.

vii. Instruct the patient or parent how to clean the ear and how to instil the ear drops if this is necessary.

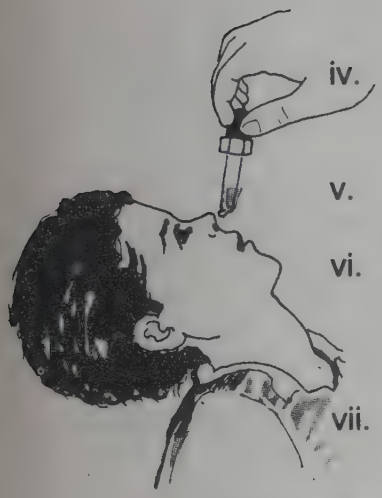
viii. Record the amount and name of the drug administered in the patient's health card.

Procedure for administering nose drops:

i. Ask the patient to blow his nose gently to clear it of discharge.

ii. Ask the patient to sit with his head tilted backwards. In the case of a small child, lay him on the mother's lap with the head bent backwards and held firmly with both hands.

iii. Instil the prescribed amount of drops in the outer nostril. Be careful not to touch the nose with the tip of the dropper.



iv. Hold the patient's head back for a few seconds before bringing it back to the upright position.

v. Wipe off any excess with cotton wool and discard the swab.

vi. Instruct the patient or parent how to instil drops after cleaning the nostril of discharge. They can continue the treatment at home if necessary.

vii. Record the amount and name of the drug administered in the patient's health card.

Procedure for applying medication to the skin

i. Clean the skin of any discharges or dirt using cotton swabs moistened with clean warm water.

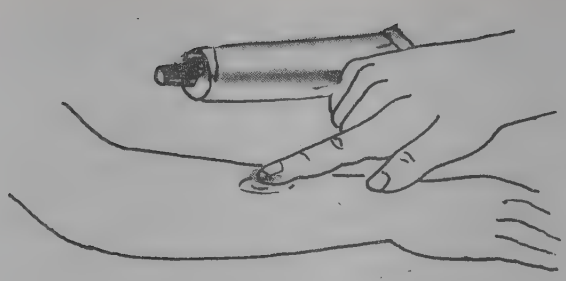
ii. Clean the skin beginning at the centre and working outwards to avoid contamination of areas already cleaned.

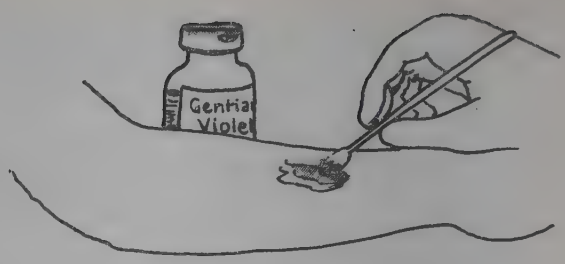
iii. Discard a swab after a single use.

iv. Apply the ointment or liniment to the skin using the fingers. In the case of lotions or paints, apply with a cotton swab or stick swab.

v. Cover the area with a gauze dressing and bandage if ointment is applied.

vi. Instruct the patient or parent how to clean the skin and apply the drug to the skin at home if this is necessary.





vii. Record the medication applied to the skin in the patient's health card.

Administering injections

See Chapter 13 for intradermal, subcutaneous, and intramuscular injection techniques.

The details of any drug that you administer should be recorded as follows:—

— In the patient's health card. This is done at the time that the drugs are dispensed. The dose, route and amount dispensed should be recorded. This is important for purposes of follow-up.

— In your daily diary when administering drugs in the home since you may often not have the health card in your kit. Remember to enter these details in the patient's health card when you return to the Subcentre.

You will also be responsible for maintaining registers at the Subcentre of the various drugs received, dispensed and in stock.

In case of error in administering a drug, you must report this promptly to your supervisor. Refer the patient to the Primary Health Centre since the patient may need medical care.

Things to do

1. Examine all the drugs in the Subcentre. Ensure that:

— None of the drugs is past its expiry date.
— None of the drugs has changed its colour, consistency or smell.
— Each bottle is properly labelled.
— The medicines for external use are labelled: FOR EXTERNAL USE
— Eye, ear and nose drops are clearly marked.
— The medicines for internal use are separately stored from the medicines for external use.
— All the drugs are kept locked and out of the reach of children.

2. Before the clinic opens collect all the materials you need for dispensing medicines, e.g.

— Pieces of clean paper for wrapping up tablets, capsules or powders
— Stick swabs and cotton wool
— Soap and water
— Drinking water
— Medicine glass, teaspoon, medicine dropper, measuring spoon (arrangements for cleaning them after each use)
— Sterilized syringes and needles.
— Clean empty bottles of various sizes. These are sometimes needed for every poor patients. You can ask people to donate them, to the Subcentre.

CHAPTER 24

ANNEXURE 23.1

Guide for the use and administration of drugs

A. Drugs for internal use (one year of age and above)

Sl. No.	Drug (National Formulary)	Uses	Dosage and Administration			
			1-4 years	5-9 yrs	10-14 yrs	15 yrs and above
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Aceyl Salicylic Acid tablets	i. In common cold ii. In aches and pains, e.g. headache, toothache backache iii. In fever iv. In sore throat	½ tablet	1 tablet	1 to 1½ tablets	2 tablets
			Tablets to be taken with water.			
			TABLETS SHOULD NOT BE TAKEN ON AN EMPTY STOMACH			
			Total dose not to exceed 2 tablets in 24 hours	Total dose not to exceed 3 tablets in 24 hours	Total dose not to exceed 4 tablets in 24 hours	Total dose not to exceed 6 tablets in 24 hours
2.	Belladonna and Phenobarbitone tablets	i. In colicky pain in the abdomen ii. In pain associated with menstruation	—	½ tablet twice a day	½ tablet twice a day	1 tablet 3 times a day
			Tablet to be given with water			
3.	Bephenium Hydroxynaphthoate granules (5g)	In hook worm infestation	Single dose of 5 g by mouth to be given on an empty stomach. Food is to be withheld for one hour afterwards.			

(1)	(2)	(3)	(4)	(5)	(6)	(7)
4.	Calcium Gluconate tablets (500 mg)	i. Vaginal bleeding following IUD insertion ii. Heavy vaginal bleeding during menstruation iii. Vaginal bleeding between menstrual periods iv. Backache in pregnancy	—	—	—	1 tablet daily
5.	Chloroquine Phosphate tablets (150 mg)	i. In malaria (presumptive treatment)	150 mg single dose (1 tablet)	300 mg single dose (2 tablets)	450 mg single dose (3 tablets)	600 mg single dose (4 tablets)
6.	Cough Mixture	i. In case of dry cough with irritation of the throat	1 teaspoon three times a day	2 teaspoons three times a day	2 teaspoons three times a day	4 teaspoons three times a day
7.	Dried Aluminium Hydroxide tablets (0.84 g)	i. In indigestion ii. In distension of the abdomen iii. In vague pain of the abdomen	½tablet	½tablet	1 tablet	2 tablets

Chew tablet before it is swallowed after meals.

KEEP THE TABLETS IN A COOL PLACE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
8.	Ergometrine Maleate tablets (150 mg)	i. In bleeding from the uterus following delivery or abortion	—	—	—	1 tablet to be repeated after half an hour if bleeding continues
9.	Iron and Folic Acid Tablets A. Ferrous Sulphate 60 mg Folic Acid 0.1 mg. B. Ferrous Sulphate 180 mg	i. In anaemia ii. In malnutrition iii. Note:Under the family planning programme, iron and folic acid tablets are distributed to:	A. 1 tablet daily after meals	B. 1 tablet daily after meals	B. 1 tablet daily after meals	B. 1 tablet daily after meals
	Folic Acid 0.5 mg	(a) Pregnant and nursing mothers with a Hb level of 10-12g (b) Family Planning acceptors with a Hb level of 10-12g (c) Children aged 1 to 12 years with a Hb level of 8-12 g				
10.	Kaolin Pectini suspension	i. In diarrhoea	1 teaspoon 3 to 4 times a day	1½teaspoons 3 to 4 times a day	2 teaspoons 3 to 4 times a day	2 teaspoons 3 to 4 times a day

IT IS IMPORTANT TO SHAKE THE BOTTLE WELL BEFORE GIVING THE MIXTURE AS THE POWDER SETTLES AT THE BOTTOM ON STANDING.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
11.	Liquid Paraffin	i. In chronic constipation especially with piles	1 tea-spoon	2 tea-spoons	4 tea-spoons	6 tea-spoons
			LIQUID PARAFFIN SHOULD NOT BE TAKEN FOR A LONG PERIOD			
12.	Magnesium Hydroxide tablets	i. In Constipation	1 tablet	1-2 tablets	2-3 tablets	3-4 tablets
			—			
			To be taken at bedtime diluted with water or milk			
		ii. In indigestion	—	—	—	2 tablets single dose
			DO NOT GIVE MILK OF MAGNESIA TO A PATIENT WHO HAS CONSTIPATION WITH VOMITING. REFER ANYONE WITH THESE SYMPTOMS TO THE MEDICAL OFFICER AT THE PRIMARY HEALTH CENTRE			
13.	Magnesium Sulphate	i. In constipation	Not to be given to children below the age of 5 years	½ tea-spoon	1 tea-spoon	1½tea-spoons
				To be taken at bedtime dissolved in warm water. As it is bitter, administration should be followed by sucking a piece of orange or lemon.		
				DO NOT GIVE MAGNESIUM SULPHATE TO A PATIENT WHO HAS CONSTIPATION WITH VOMITING. REFER ANYONE WITH THESE SYMPTOMS TO THE PRIMARY HEALTH CENTRE.		
				(See also under Drugs for External Use, Sl No 9).		

(1)	(2)	(3)	(4)	(5)	(6)	(7)
14.	Mebendazole tablets (100 mg)	i. In roundworm infestation ii. In threadworm infestation iii. In hookworm infestation	1 tablet twice a day for 3 consecutive days. The tablets may be taken with a little water, or during a meal, or they may be chewed. No special laxative is required. The dosage is the same for children and adults. **DO NOT GIVE MEBENDAZOLE TO PREGNANT WOMEN OR TO CHILDREN BELOW TWO YEARS OF AGE.**			
15.	Mephyramine (Antihistamine tablets) (50 mg)	i. In allergic manifestations e.g. urticaria, asthma, bee and wasp stings	½ tablet three times a day	1 tablet three times a day	1 tablet four times a day	2 tablets six times a day (4-hourly)
16.	Mist.Alkaline	i. in fever ii. in urinary complaints	—	2 teaspoons four times a day	2 teaspoons four times a day	2 teaspoons four times a day
17.	Mist.Carminative	i. In indigestion and flatulence ii. In pain in the abdomen	2 teaspoons 3 times a day	4 teaspoons 3 times a day	6 teaspoons 3 times a day	6 teaspoons 3 times a day
18.	Mist.Chloral Hydrate (1.3 g)	Severe toxaemia of pregnancy	—	—	—	2 teaspoons diluted with ½ tumbler of water

(1)	(2)	(3)	(4)	(5)	(6)	(7)
19.	Mist. Sedative Expectorant	In coughing where the mucus and sputum are thick and cannot be coughed up easly	1 tea-spoon three time a day	1 tea-spoon three time a day	2 tea-spoons three time a day	2 tea-spoons three time a day
20.	Multivitamin tablets (A,B,C,D)	i. In vitamin deficiency ii. In malnutri-tion	1 tablet three times a day	1 tablet three times a day	2 tablets three times a day	2 tablets three times a day
21.	Oral Rehydra-tion Salt (ORS) sodium Chloride 3.5g	i. In diarrhoea ii. In vomiting iii. In dehydra-tion	Dissolve salt in 1,000 ml (1 litre) of water and give small quantities at a time to the patient throughout the day. In children 25 to 30 ml are given every 10 to 15 minutes.			

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Potassium Chloride 1.5 g Sodium Bicarbonate 2.5 g Glucose 20 g					
22.	Paracetamol tables	*i.* In fever *ii.* In common cold *iii.* In sore throat	½ tablet	1 tablet	1 to 1½ tablets	2 tablets
23.	Phthalyl Sulphathiazole tablets (0.5 g)	*i.* In diarrhoea only	3 to 4 tablets 3 times a day for 7 days	3 to 4 tablets 3 times a day for 7 days	3 to 4 tables 3 times a day for 7 days	3 to 4 tablets 3 times a day for 7 dats
24.	Piperazine Citrate/ Piperazine Adipate tablets (500 mg)	*i.* In roundworm infestation	2 tablets twice a day for 6 days	2 tablets twice a day for 6 days	2 tablets twice a day for 6 days	
		ii. In threadworm infestation tablets daily for 6 days ½ tablet 3 times a day for 7 days	1 tablet twice a day for 7 days	2 tablets twice a day for 7 days	2 to 4 tablets twice a day for 7 days	
25.	Prochlorperazine tablets (500 mg) Chlorpheniramine	*i.* Vomiting of pregnancy *ii.* Nausea	—	—	—	1 to 2 tablets daily

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	maleate 2 mg Pyridoxine 5 mg Thiamine 15 mg	caused by oral contra-ceptive tablets				
26.	Sulphadimidine tablets	*i.* In acute infections *ii.* In boils, absce-sses and other skin infec-tions *iii.* In acute diarrhoea	1st dose 1 tablet Subsequent doses ½ tablet 6 hourly (4 times a day)	1st dose 2 tablets Subsequent 1 tablet 6 hourly (4 taimes day)	1st dose 2-3 tablets Subsequent doses 1 to ½ tablets 6 hourly (4 times a day)	1st dose 4 tablets Subsequent doses 2 tablets 6 hourly (4 times a day).
			MAKE SURE THAT THE PATIENT DRINKS PLANTY OF WATER.			
27.	Syrup Ferric Ammonium Citrate	*i.* In anaemia and malnutrition in small children who cannot swallow tablets	1 teaspoon twice a day after food	—	—	—

(1)	(2)	(3)	(4)	(5)	(6)	(7)
28.	Vitamin A Solution (1 lakh I.U. per ml in Oil)	*i.* In general maluntrition *ii.* In dryness of eyes *iii. Note:* Under the family planning programme, Vit. A is distributed to all children between the ages of 1 to 5 years	2 ml to be placed on the child's tongue by means of the dropper provided. Repeat dose every 6 months up to 5 years of age (10 doses)	—	—	—
29.	Vitamin C tablets (100 mg)	*i.* Vaginal bleeding following IUD insertion	—	—	—	2 tablets twice a day
30.	Injection Methyl Ergometrine Maleate (0.2 mg)	*i.* Postpartum haemorrhage	—	—	—	1 ml by intramuscular injection

B. Drugs for Internal use in Children below one year of age

Sl No.	Drug (National Formulary)	Uses	Dosage and Administration
(1)	(2)	(3)	(4)
1.	*Chloroquine Phosphate tablets*	*i.* In malaria (presumptive treatment)	75 mg (½ tablet dissolved in honey)
2.	Cough Mixture	*i.* In cases of dry cough with irritation of the throat	½ tearspoon three times a day
3.	Kaolin Pectin Suspension	*i.* In diarrhoea	½ teaspoon 3 to 4 times a day
4.	Magnesium Hydroxide tablets	*i.* In constipation	½ tablet dissolved in water or milk
5.	Mist. Alkaline	*i.* To increase the output of urine	1 teaspoon every 4 to 6 hours
6.	Mist. Carminative	*i.* In pain in the abdomen	2 teaspoons three times a day
7.	Oral Rehdyration Salt (ORS)	*i.* In diarrhoea *i.* In vomiting *iii.* In dehydration	Dissolve salt in 1,000 ml (1 litre) of water. Give 5 to 6 teaspoons every 10 to 15 minutes.
8.	Paracetamol tablets	*i.* In common colds *ii.* In fever	¼ tablet dissolved in honey or water after feeds (Total does not to exceed 1 tablet in 24 hours)
9.	Syrup Ferric Ammonium Citrate	*i.* In anaemia and malnutrition	¼ teaspoon twice a day after feeds

C. Drugs for External Use

Sl No.	Drug (National Formulary)	Uses	Administration
(1)	(2)	(3)	(4)
1.	*Acriflavine ointment*	*i.* In infected wounds *ii.* In burns *iii.* In abrasions	Apply over the affected part and cover with a dressing. 3 times a day or less often in the case of burns.
2.	Antiseptic lotion (Chlorhexedine Gluconate 1.5% Cetrimide 3%)	*i.* For cleaning the skin before giving intramuscular injections* *ii.* For cleaning wounds, ulcers, etc. *iii.* During delivery for swabbing the perineum *iv.* For sterilization of IUD	*1., ii. & iii.* Add 2.5 ml (½ teaspoon) lotion to 100 ml boiled water. Place cotton swabs in lotion. Swab skin away from affected area. *iv.* Add 15 ml (3 teaspoons) lotion to 100 ml boiled water. Wash and place IUDs in solution and keep for 24 hours before use. If unused the IUDs must be placed in fresh lotion and re-sterilized. **Note :* For immunigation do not use antiseptics, Clean the skin with soap and water.
3.	Benzonic Salicylic ointment (Benzoic acid 1.50 g Salicylic acid 0.75 g Vaseline base 25 g)	*i.* In ringworm and other fungus infections of skin	Apply locally on dry skin 4 times a day for 1 week.

(1)	(2)	(3)	(4)
4. Benzyl Benzoate emulsion (25%)	*i.* In scabies		*i.* Bathe with soap and water using a brush to open all the blisters. *ii.* While skin is slightly wet apply benzyl benzoate lotion over whole body except head and neck. *iii* Allow to partly dry. *iv.* Apply a second layer of benzyl benzoate. *v.* Leave lotion on body for 24 hours. *vi.* Bathe thoroughly with soap and water. *vii.* Put on clean clothing. *viii.* Apply for 3 days. ALL CLOTHING AND BEDDING SHOULD BE WASHED AND, IF POSSIBLE, BOILED
	ii In lice infestation		Apply to scalp, Leave over night, wash off next morning.
5. Boric Acid powder	*i.* For cleaning wounds *ii.* For cleaning eyes in conjunctivitis *iii.* For dressing umbilical cord stump or wounds		*i & ii.* Make a solution by adding 3.4 g (1 teaspoon) of boric acid powder to 100 ml of freshly boiled cooled water. Place clean cotton swabs in the solution. Use these for cleaning skin or eyes.

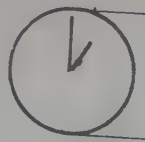
(1)	(2)	(3)	(4)
			iii. Clean wound and dry. Dust powder on wound and apply dry dressing. *Note :* Boric acid 5 per cent and above should not be used on raw areas.
6.	Calamine lotion (Calamine 15% Zinc oxide 5% Glycerine 5% in Rose Water)	*i.* In itching *i.* In urticaria *i.* In bee and wasp stings	Apply on affected area three or four times a day. *Note:* This lotion should be preserved in well-closed containers.
7.	Chloromycetin eye ointment	*i.* In conjunctivitis *ii.* In styes	After cleaning the affected eye, cut the tip of one capsule with a clean blade or pair of scissors and squeeze the ointment into the eye.
8	Gentian Violet (2% gentian violet in distilled water) GENTIAN VIOLET STAINS CLOTHING BADLY AND A DRESSING MUST, THEREFORE, BE APPLIED.	*i.* In wounds, boils and ulcers	*i.* Wash. the affected part with clean water. Apply the dye with a stick swab to the affected area. Cover with a clean dry dressing 3 times a day.
		ii. In burns (mixed with vaseline)	*ii.* Mix the dye with vaseline and apply on the burns. Cover with dry dressing.
		iii. In sore mouth and tongue *iv.* In fungal infections, e.g. thrush	*iii.* & iv. Using a stick swab paint the affected mucous membrance with the dye.

(1)	(2)	(3)	(4)
9.	Magnesium Sulphate	*i* For fomentation and as a dressing for dirty wounds or soaking an infected limb	Add four teaspoons of crystals to a small amount of boiling water. Use only sufficient water so that some crystals remain undissolved. Apply as a dressing or a fomentation or for soaking.
10.	Menthol & Eucalyptus Oil ointment	*i.* In common cold *ii.* In nasal congestion	Add one teaspoon of ointment to boiling water and use as an inhalation (See Chapter 20). At bedtime rub chest and neck with ointment and insert some ointment into each nostril.
11.	Mercurochrome (2% Mercuric chloride in distilled water)	*i.* In fresh cuts and scratches *ii.* For umbilical cord dressings *iii.* In perineal tears	Wash the wound with clean water and dry. Apply mercurochrome with a cotton swab. Apply a clean dressing or leave open. **MERCUROCHROME MUST NOT BE APPLIED IN THE MOUTH.**
12.	Methyl Salicylate liniment (Methyl salicylate 13 ml Arachis oil to 50 ml)	*i.* In muscular pains *ii.* In joint pains *iii.* In sprains	Rub some liniment gently into the skin over the painful area. Cover with a piece of lint or cloth. In the case of a joint apply a firm elastocrepe bandage if available. Rest the part.

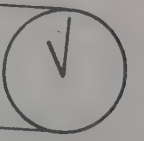
(1)	(2)	(3)	(4)
13.	Methylated Spirit	*i.* For cleaning skin before giving injections *ii.* To remove tincture benzoin dressing	
14.	Sulphacetamide eye and ear drops (10% solution of sulphacetamide powder in distilled water)	*i.* In conjunctivitis and other eye infections *ii.* In styes *iii.* In earache *iv.* In ear discharge	Eye: After cleaning affected eye with boric lotion, instil 2 drops in eye. Four times a day for 5 days. Ear: After cleaning affected ear with cotton wick, instil 2 drops in ear. Three times a day for 7 days. IF THIS TREATMENT DOES NOT LEAD TO IMPROVEMENT REFER THE PATIENT TO THE PHC.
15.	Tetracycline eye ointment (1% tetracycline in a soft lanolin base)	*i.* In severe conjunctivitis *ii.* In trachoma	After cleaning the affected eye apply the ointment. 4 times a day for 3 days.
16.	Tincture Benzoin Co.	*i.* In fresh incised wounds *ii.* In grazes *iii.* In bruises	*i., ii. & iii.* Clean the wound with anti-septic lotion and dry with cotton. Apply a thin layer of cotton on the wound and soak cotton with tincture benzoin. As the spirit

(1)	(2)	(3)	(4)
			evaporates the benzoin sticks to the wound and seals it off from the outside. Leave on for 2 days. Remove with spirit.
		iv. In bronchitis *v.* In nasal congestion (use a steam inhalation)	*iv. & v.* Add ½ to 1 teaspoon of tincture benzoin co. in boiling water and use as an inhalation (See Chapter 20).
17. Tincture Iodine (2.5% Iodine in rectified spirit)		*i.* In abrasions *ii.* In small ulcerations *iii.* In ringworm	Clean the skin. Apply tincture iodine with a stick swab. Apply a dressing or leave open. Once a day. TINCTURE IODINE MUST NOT BE APPLIED IN THE MOUTH. SOME PATIENTS ARE ALLERGIC TO IODINE AND DEVELOP A RASH FOLLOWING ITS APPLICATION.

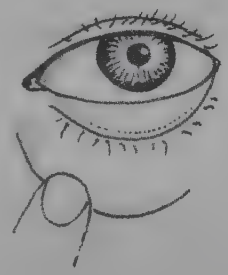
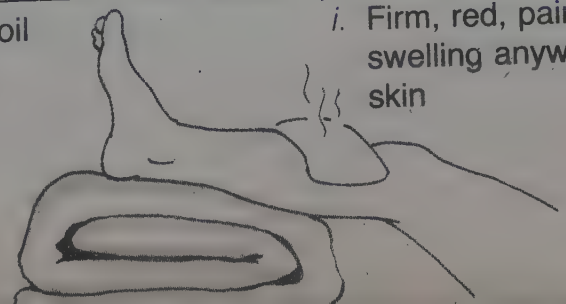
(1)	(2)	(3)	(4)
18.	White Vaselinee	*i.* In burns	Vaseline is mixed with gentian violet lotion to form an ointment and is then applied to the burnt area.
		ii. For lubrication of rectal thermometer before insertion	
		iii. For lubrication of enema tube or flatus tube before insertion	
19.	Zinc Boric dusting powder (Zinc oxide 25 g. Boric acid 25 g. Starch 25 g.	*i.* For dressing umbilical cord stump	Clean wound. Sprinkle with dusting powder, apply clean gauze dressing and bandage or apply sticking plaster.
		ii. For dry dressing of wounds	
		iii. In itching and eczema	



It is better to refer a case too early rather than too rate.



Sl No	Condition	Symptoms and signs to look for	Treatment & Followup	Referral
1	2	3	4	5
1.	Abdominal Pain	See Sl No. 37A, Pain—Abdomen		
2.	Abscess	*i.* Swelling *ii.* Pain *iii.* Tenderness *iv.* Redness *v.* Warmth *vi.* Pus formation *vii.* Fever	*i.* Hot fomentation with magnesium suplhate *ii.* Sulphadimidine tablets *iii.* Acetyl salicylic acid tablets	*i.* If abscess does not subside *ii.* If abscess is large *iii.* If abscess needs incision *iv.* If multiple abscesses
3.	Allergic rash	See Sl No. 41A, Rash—Allergy		
4.	Amenorrhoea	*i.* Missed menstrual period *ii.* Check whether pregnant (examination) *iii.* Check whether anaemic (Hb)	*i.* If pregnant: prenatal care *ii.* If anaemic: iron & folic acid tablets	*i.* If not pregnant *ii.* If no response to iron and folic acid tablets within 1 mo

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
5.	Anaemia 	i. Pale lips, conjunctiva, tongue and ii. nails iii. Gets tired easily Hb level between iv. 70-80% Check for (a) pregnancy (b) worm infestation (c) malaria (d) bleeding piles (e) menorrhagia	i. Iron & folic acid tablets ii. Diet rich in green leafy vegetables, dal, meat, liver, egg iii. Repeat Hb after 3 months	i. If no response to iron & folic acid tablets ii. If Hb level is below 70%
6.	Backache	i Pain in back ii. Stiffness in movements iii. Look for deformity in the spine.	i. Hot fomentations ii. Apply methyl salicylate liniment iii. Acetyl salicylic acid tablets	i. If there is deformity of the spine ii. If low backache of long duration in a women. iii. If no relief in 4 to 5 days
7.	Boil 	i. Firm, red, painful swelling anywhere on skin	i. Hot fomentations with salt or magnesium sulphate	i. If no response to treatment ii. If it becomes an

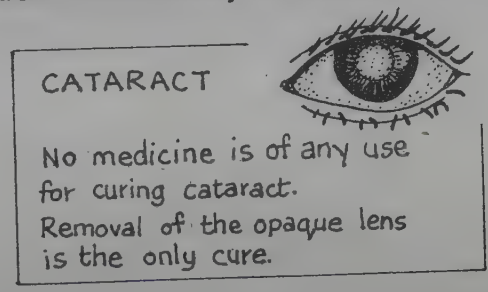
Sl No.	Condition	Symptoms and signs to look for	Treatment & Followup	Referral
		ii. May be fever and headache *iii.* May become an abscess *iv.* If multiple boils, check urine for Sugar	*ii.* Sulphadimidine tablets *iii.* Acetyl salicylic acid tablets *iv.* Advise frequent baths	*ii.* abscess and needs incision *iii.* if multiple boils *iv.* If boils frequently recur
8.	Breast Pain	See Sl No. 37C, Pain—Breast		
9.	Breast Swelling	See Sl No. 49A, Swelling—Breast		
10.	Burning urination	May be accompanied by: *i.* Discharge from urethra or vagina *ii.* Fever *iii.* Pain over bladder region *iv.* Smoky or bloodstained urine	*i.* Plenty of fluids to drink especially coconut or barley water *ii.* Mist alkaline *iii.* Sulphadimidine tablets	*i.* If no relief in 3 days *ii.* If urethral or vaginal discharge *iii.* If history of exposure to STD

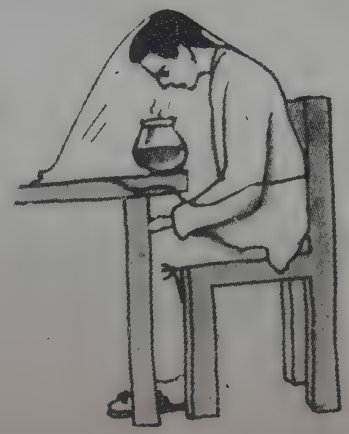
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral

Cataract

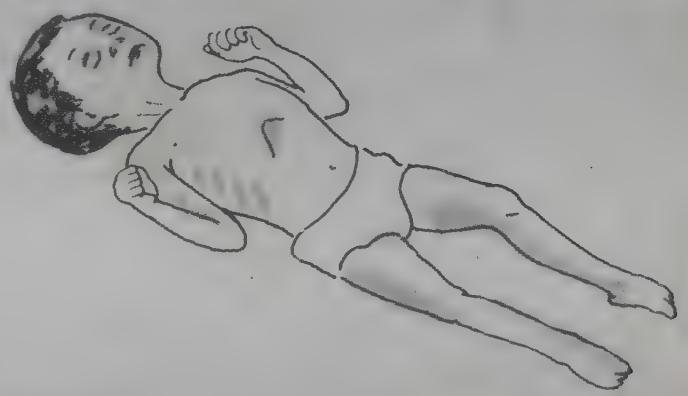
Cataract usually occurs in older people. With age the transparent lens in the eye gradually becomes cloudy and the vision decreases. When the lens is completely opaque that eye is totally blind. If you shine a light into the eye, the pupil looks gray or white instead of black.

If the lens is removed by an operation and the person is given strong glasses, he can see again. Refer any case of blindness or suspected cataract immediately to the MO PHC; or send the patient to an eye camp or to the district hospital for surgery.



11. Common cold	*i.* Running nose	*i.* Apply menthol and eucalyptus oil ointment in nostrils and to chest and neck	*i.* If no improvement in 3 days	
	*ii.* Wate ing eyes	*ii.* Steam inhalations	*ii.* If other symptoms appear	
	iii. Heada che	*iii.* Acetyl salicylic acid tablets		
	iv. Fever shness	*iv.* *Paracetamol tablets*		
	v. Difficu ty in breathing	*v.* if fever, bed rest.		
	vi. May l accompanied by so e throat			
	vii. Loss of appetite			

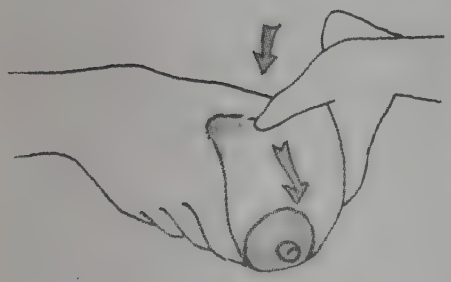
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
12.	Conjunctivitis	See Sl No. 45, Sore eyes		
13.	Constipation	*i.* Difficulty in passing stools; stools are small in amount, dry and hard *ii.* Discomfort or pain in abdomen *iii.* Loss of appetite	*i.* Magnesium hydroxide tablets *ii.* If no effect, magnesium sulphate or enema *iii.* Advise plenty of warm water, fruit and vegetables *iv.* Advise regular bowel habits.	*i.* if accompanied by severe colicky pain and vomiting
14.	Convulsions: A. Convulsions in children	*i* Child becomes stiff & teeth are	*i.* Cover child *ii.* Prevent child from	*i.* If fever with convulsions

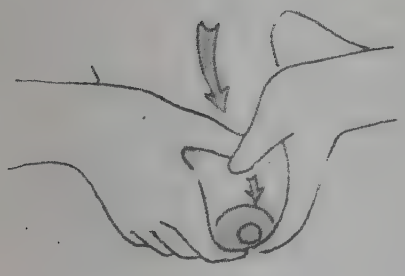


Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		clenched ii. Twitching of muscles iii. Flushed face iv. Eyes are suddenly rolled upwards v. May accompany high fever vi. Child may not take feeds vii. May be accompanied by difficulty in opening mouth	injury iii. Loosen clothes and ensure plenty of fresh air. iv. Keep airway clear; remove secretions; keep head lower than rest of body with face turned to one side v. If fever, cold sponging	ii If unable to open mouth or unable to suck (newborn) iii. If history of cord sepsis iv. If feeds not taken
	B. Convulsions in pregnancy (Eclampsia)	Accompanied by i. Swelling of feet, fingers, face, vulva ii. Raised blood pressure iii. Scanty urine iv. Presence of albumen in urine v. Headache vi. Drowsiness vii. Blurring of vision	i. Complete bed rest in a quiet, darkened room ii. Mist chloral hydrate iii. Give salt-free diet, coconut or barley water and sugar iv. Mouth gag during convulsions	i. Do not move a patient having eclamptic convulsions; call the MO.
	15. Cough	May be accompanied by i. Sore throat ii. Sputum iii. Pain in chest iv. Fever v. Vomiting	i. Cough mixture ii. Mist sedative expectorant (if dry cough) iii. Steam inhalations	i. If chest pain ii. If shortness of breath iii. If cough present for more than 2 weeks

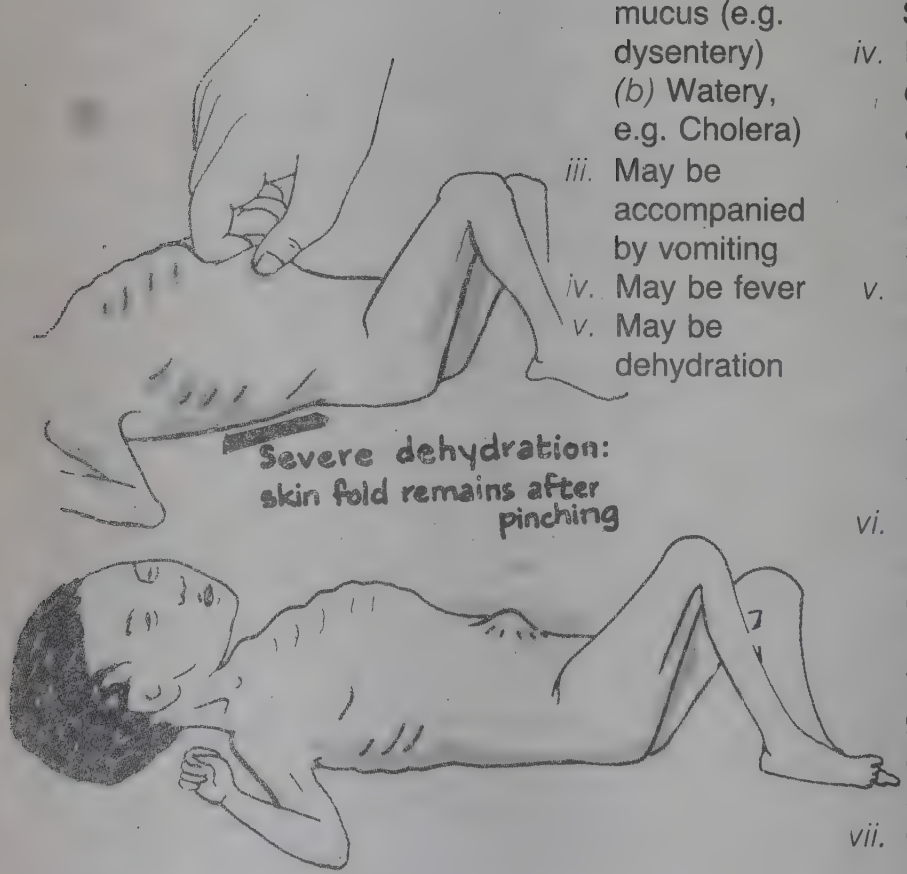
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		vi. Difficulty in breathing vii. Whooping sound	iv. Salt gargles v. If fever (a) Paracetamol tablets (b) Sulphadimidine tablets	iv. If accompanied by: (a) Vomiting (b) High fever (c) Haemoptysis v If no improvement with treatment for 3 to 4 days

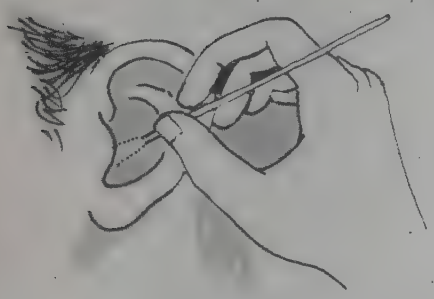
16. Cracked nipples	i. Nipples are cracked & there may be bleeding or infection Suckling is painful and difficult Breast engorged and painful. May be fever	i. Advise mother to continue breast-feeding in spite of pain ii. Paint gentian violet or apply protective cream on cracks after feeds iii. Express milk and empty breast 3 to 4 times during day iv. Give a support to breast v. Cold compress if breast engorgement vi. Advise breast hygiene	i. If breast abscess devlops.	





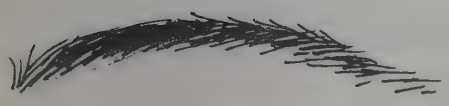
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
			(drawing out nipples; cleaning breasts before and after each breastfeed; regular feeds for 10 to 15 minutes at each breast)	
	17.Diarrhoea	*i.* Loose, frequent stools *ii.* Stools may be *(a)* with blood and mucus (e.g. dysentery) *(b)* Watery, e.g. Cholera) *iii.* May be accompanied by vomiting *iv.* May be fever *v.* May be dehydration	*i.* Kaolin pectin suspension *ii.* Phythalyl sulphathiazole tablets *iii.* Oral Rehydration Salt Solution *iv.* If epidemic of diarrhoea & vomiting, take stool sample and send to PHC *v.* If cholera, immunize community and protect food and water *vi.* In infants and children continue breast-feeding, or give adequate nourishment *vii.* Give soft, bland diet,	*i.* If blood and mucus in stool *ii.* If severe dehydration (start oral rehydration) *iii.* If epidemic of diarrhoea

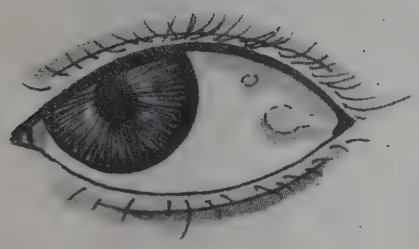


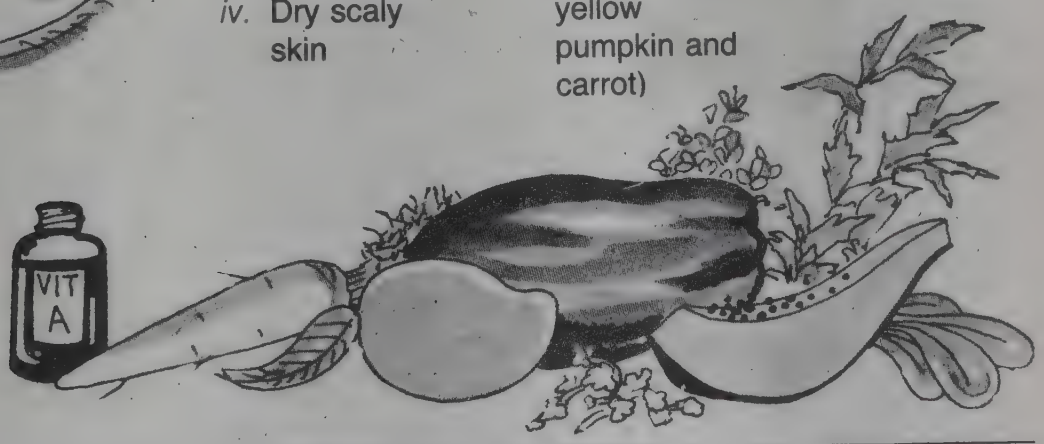
Sl. No.	Condition	Symptoms and signs to look for	Treatment Follow-up	Referral
			e.g. rice kanjee, banana, buttermilk, boiled rice, arrowroot biscuits, coconut water	
18.	**Discharge** **A. Discharge–Ear** 	*i.* Purulent discharge from ear *ii.* Pain in ear *iii.* Child may pull at ear and be irritable *iv.* May be difficulty in hearing *v.* May be fever	*i.* Clean ear gently with cotton wool on stick swab *ii.* Apply sulphacetamide ear drops *iii.* Cotton plug *iv.* If fever, sulphadimidine tablets	*i.* If no response to treatment for 3 days *ii.* If bone behind ear is tender on pressing *iii.* If hearing is impaired
	B. Discharge–Eye 	*i.* Sticky or purulent discharge from one or both eyes *ii.* Patient cannot open eyes in morning *iii.* Pain in eye *iv.* Redness of eye *v.* May be infection of eyelid *vi.* May be itching or a	*i.* Clean eye with boric lotion *ii.* Apply sulphacetamide eye drops or chloromycetin Aplicaps *iii.* If trachoma, apply tetracycline eye ointment *iv.* Acetyl salicylic acid tablets to	*i.* If no improvement following treatment for 4 days

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		sensation of grit in the eye, e.g. trachoma *vii.* May be fever	relieve pain *v.* If fever, sulphadimidine tablets	
	C. Discharge—Urethra	*i.* Purulent discharge from urethra *ii.* Burning urination *iii.* History of sexual exposure	*i.* Advise patient to take plenty of fluids, especially coconut or barley water *ii.* Advise patient to refrain from sexual intercourse until cured	*i.* For treatment for gonorrhoea
	D. Discharge—Vagina	*i.* Discharge may be *(a)* White and milky or yellowish *(b)* Thick & curdy (e.g. thrush) *(c)* Greenish & frothy (e.g. trichomoniasis) *(d)* Foul-smelling *(e)* Bloodstained *ii.* Itching of vulva *iii.* May accompany IUD	*i.* Clean vulva & vagina with cotton swab and warm saline *ii.* If itching of vulva, apply gentian violet or calamine lotion *iii.* If IUD in position give iron & folic acid tablets *iv.* If fever and pain, sulphadimidine tablets and hot	*i.* If no response to treatment for 3 days *ii.* Refer for medical examination and treatment especially if foul-smelling, bloodstained discharge in a woman over 35 years.

Sl. No.	Condition	Symptoms and signs to look for	Treatment Follow-up	Referral
		iv. May be fever and pain in abdomen (e.g. postpartum)	fomentations to lower abdomen	
19.	Dry eyes (Vitamin A deficiency)	i. Sclera looks dry, dull and creased ii. Bitot's spots (triangular, white, foamy patches on white part of eye) iii. Night blindness iv. Dry scaly skin	i Vitamin A solution ii. Advise plenty of green leafy vegetables, and yellow fruit and vegetables (e.g. mango, papaya, yellow pumpkin and carrot)	i. If signs of corneal ulcer
20.	Dysmenorrhoea	i. Pain in lower abdomen before or during menstrual period ii. May acompany IUD	i. Acetyl salicylic acid tablets ii. If pain before menstrual period, belladonna and phenobar-bitone tablets iii. Hot fomentations to lower abdomen	i. If dysmenor-rhoea persists

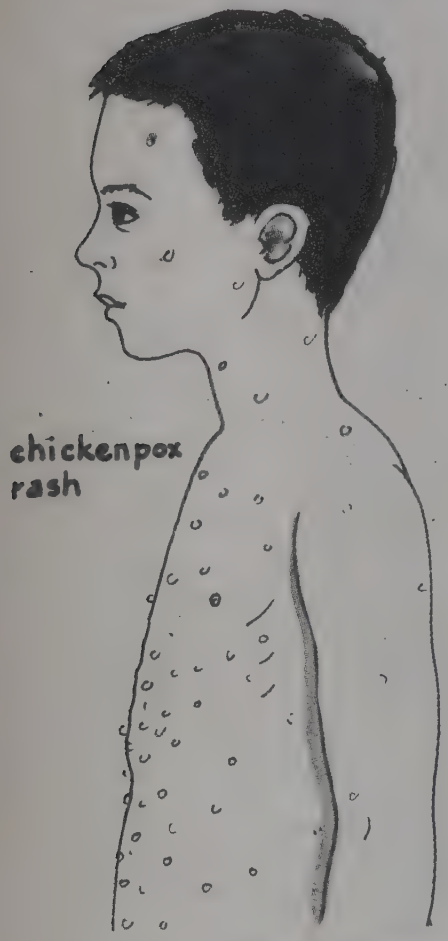






Sl. No.	Condition	Symptoms and signs to look for	Treatment Follow-up	Referral
			iv. Advise fresh air and regular, moderate exercise v. Advise patient to avoid constipation	
21.	Ear discharge	See Sl. No. 18A, Discharge — Ear		
22.	Earache	i. Pain in ear ii. Child is irritable and pulls at ear iii. May be ear discharge iv. May be fever v. May be sore throat vi. Ask if patient feels dizzy or cannot hear well	i. Apply sulphacetamide ear drops ii. Acetyl salicylic acid tablets iii. Treat for sore throat if present	i. If no response to treatment in 3 days ii. If patient complains of dizziness or loss of hearing
23.	Eye discharge	See Sl. No. 18B, Discharge — Eye		
24.	Fever A. Fever–With Rash	i. Temperature moderate to high (37.7°C to 39.4°C) ii. Rash–Note: (a) distribution of rash (b) type of rash, e.g. —dusky red, blotchy	i. Isolate patient ii. Disinfect all discharges from nose, mouth & skin iii. Bed rest, light diet & plenty of fluids iv. Paracetamol tablets v. Sulphadimidine	i. Inform MO PHC immediately if smallpox is suspected

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		(measles) —crop of either papules, vesicles, pustules or scabs (smallpox) —mixed crops (Chicken-pox) *iii.* May be running nose and watering eyes (measles) *iv.* May be severe headache & backache & patient is very ill (smallpox)	tablets *vi.* If measles, shade room to protect eyes from light and protect patient from draughts	

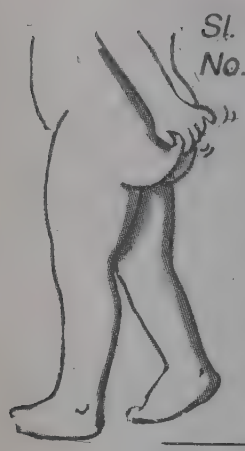


Note: Smallpox has been eradicated since 1978.

B. Fever— Without Rash	*i.* Fever may be *(a)* continuous or on alternate days *(b)* low, moderate or high *ii.* Look for other conditions, e.g. *(a)* Rigors,	*i.* Prepare thick & thin blood smears *ii.* Chloroquine tablets *iii.* Paracetamol tablets *iv.* Treat according to other symptoms present	*i.* If blood smear is not positive for malaria and no response to treatment in 3 days *ii.* If symptoms such as stiff neck, difficulty in moving limb, jaundice, difficulty in breathing,	

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		e.g. in malaria *(b)* Diarrhoea, constipation, vomiting *(c)* Cough & cold *(d)* Pain in abdomen *(e)* Jaundice *(f)* Skin infection, etc.		etc. are present.
25.	Fits	See Sl. No. 14, Convulsions		
26.	Headache	*i* Pain in head (e.g. forehead, temples, back of head) *ii.* Look for other conditions, e.g. *(a)* fever *(b)* running nose, sore eyes, ear discharge *(c)* constipation, jaundice *(d)* toxaemia of pregnancy, etc.	*i* Acetyl salicylic acid tablets *ii.* Rub forehead with methyl salicylate liniment and tie a bandage tightly around head *iii.* Treat according to other symptoms present	*i.* If no response to treatment *ii.* If symptoms such as stiff neck, jaundice, toxaemia, etc. are present *iii.* If patient gets repeated, severe headaches
27.	Indigestion	*i.* Feeling of discomfort and heaviness in upper	*i.* Dried aluminium hydroxide tablets	*i.* if patient has repeated attacks of indigestion in

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		abdomen *ii.* Distension of abdomen (bloating) *iii.* May be repeated belching & acid taste in mouth *iv.* May be constipation	*ii.* Advise patient (a) not to overeat (b) to have a light meal well before retiring at night (c) to avoid heavy, spicy food *iii.* Dried pieces of ginger soaked in lemon juice after meals. *iv.* Sips of milk or hot water with crushed mint leaves	spite of change in food habits
28.	Itching	*i.* Constant desire to scratch *ii.* May be a blisterlike eruption, e.g. scabies, or a circular, scaly patch, e.g. ringworm *iii.* May be a history of allergy *iv.* May be vaginal discharge, e.g. in itching of vulva	*i.* Apply calamine lotion *or* apply gentian violet *ii.* If itching of vulva, sit in tub of warm water to which few spoons of soda bicarb are added *iii.* Treat according to other symptoms	*i.* If associated with vaginal discharge *ii.* If other serious conditions are present e.g. jaundice *iii.* If no response to treatment



Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		v. May be thread-worm infestation, e.g. in itching around anus vi. Look for jaundice		
29.	Jaundice	See Sl No. 58, Yellow eyes		
30.	Joint pains	See Sl No. 37H, Pain—Joints		
31.	Joint swelling	See Sl No. 49C, Swelling—Joints		
32.	Lice infestation	i. Presence of lice and nits in hair ii. Itching of scalp iii. Usually present in other members of family also	i. Wash hair with soap & hot water ii. Apply benzyl benzoate emulsion *or* vinegar *or* kerosene to scalp iii. Cover head with cap or scarf and leave on overnight iv. Comb hair with fine toothed comb and remove lice and nits v Repeat treatment until no lice or nits remain	

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
			vi. Treat all those in family who have lice infestation	
33.	Malnutrition A. Malnutrition —Cracks at corners of mouth 	i. Lips show cracks at corners of mouth	i. Multivitamin tablets ii. Advise patient to take plenty of groundnuts, pulses, bajra, meat, liver, eggs	i. If no response to treatment
	B. Malnutrition —Kwashiorkor 	i. Swelling of face, limbs & abdomen ii. Skin shows patchy peeling iii. Hair sparse & brittle iv. Poor appetite, looks miserable, weak cry	i. Give frequent small feeds containing high quantity of protein ii. Follow up with nutrition education of mother	i. If severe malnutrition (weight falls below line III; arm circum-ference below 12.5 cm)
	C. Malnutrition —Marasmus 	i. Face wizened, anxious look ii. Limbs very thin like sticks iii. Abdomen bloated iv. Gross loss of weight v. Accepts food vi. Diarrhoea often present	i. Give frequent small feeds containing high calories and high amounts of protein ii. Follow up with nutrition education of mother	i. If severe malnutrition (weight falls below line III; arm circum-ference below 12.5 cm)

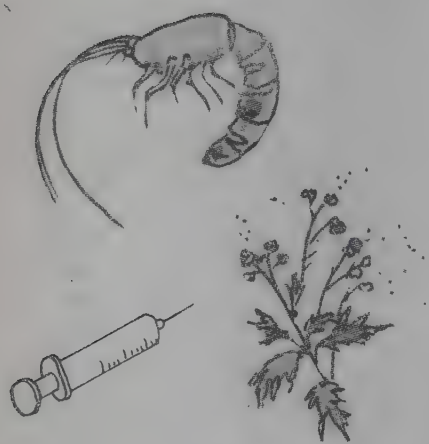
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
	D. Malnutrition —Vitamin A deficiency	See Sl. No. 19, Dry eyes		
34.	Nausea	*i.* Patient feels she is going to vomit *ii.* May be vomiting *iii.* Often accompanies early pregnancy *iv.* May be on oral contracep-tives	*i.* Prochlor-perazine tablets *ii.* Advise small, frequent meals, plenty of fruit or juice especially sugarcane juice, dry toast or biscuit, no fried foods	*i.* If no relief of symptoms
35.	Night blindness	Treat as for Dry eyes (See Sl. No. 19)		
36.	Oedema	See Sl. No. 49B, Swelling—Feet		
37.	Pain			
	A. Pain—Abdomen	*i.* Check *(a)* Location of pain *(b)* Type of pain (sharp, dull, colocky) *(c)* Severity of pain *(d)* Relation-ship to taking food,	*i.* Rest in bed *ii.* Dried aluminium hydroxide tablets *iii.* Mist carminative *iv.* Treat cause (according to signs and symptoms)	*i.* If no response to treatment *ii.* If pain is severe *iii.* If associated with constipation and vomiting *iv.* If associated with fever and vomiting *v.* If patient's condition is

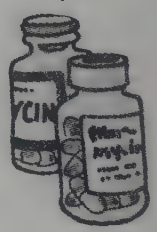
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		passing urine, menstruation, pregnancy, etc. *ii.* May be accompanied by other symptoms, e.g. vomiting, diarrhoea, constipation, fever, vaginal bleeding, passing worms, etc.		deteriorating or patient is in shock
	B. Pain—Back	See Sl. No. 6, Backache		
	C. Pain—Breast	Pain may be associated with *(a)* Engorgement of breasts, cracked nipples & fever in a lactating woman *(b)* Lump in breast	*(a)* Treat as for cracked nipples (See Sl. No. 16)	*i.* If breast abscess forms and needs incision *ii.* If lump in breast
	D. Pain—Chest	May be associated with *i.* Cough *ii.* Breathlessness *iii.* Sweating, rapid, feeble pulse, fall in BP and pain	*i.* Treat cough if present (See Sl. No. 15) *ii.* Keep patient at complete rest in bed.	*i.* If no response to treatment for cough *ii.* Refer immediately *(a)* If patient is breathless

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		along left arm		*(b)* If patient is sweating, pulse is rapid and feeble, blood pressure is low *(c)* If pain is felt along left arm
	E. Pain—Ear	See Sl. No. 22, Earache		
	F. Pain—Eyes	*i.* Pain in eyes *ii.* May be redness and discharge *iii.* May be history of injury *iv.* May be blurring of vision	*i.* Apply sulphacetamide eye drops *ii.* Treat according to cause	*i.* If infection does not subside within 3 days *ii.* If eye injury *iii.* For testing of vision
	G. Pain—Head	See Sl. No. 26, Headache		
	H. Pain—Joints	*i.* Pain in one or more joints *ii.* Swelling of joint *iii.* May be fever *iv.* Ask for history of sprain	*i.* Hot fomentation *ii.* Apply methyl salicylate liniment and bandage *iii.* Acetyl salicylic acid tablets *iv.* Rest with joint raised	*i.* If joint pain and fever in a child

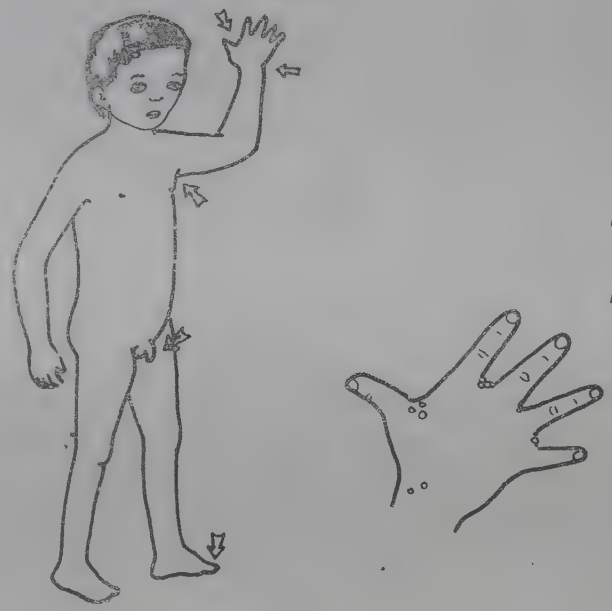
Sl. No.	*Condition*	*Symptoms and signs to look for*	*Treatment & Follow-up*	*Referral*
	I. Pain—Tooth	See Sl. No. 51, Toothache		
38.	Patch on skin	*i.* Dark or light coloured patch on skin anywhere on body *ii.* May or may not be itching *iii.* Test for loss of sensation *iv.* Feel for thickening of nerves *v.* Look for thickening or nodules on skin and loss of hair *vi.* If leprosy suspected (steps *iii-v*): take smears from skin and nasal mucosa	*i.* If itching, treat cause, e.g. ringworm (See Sl. No. 42) *ii.* If leprosy, *(a)* Advise patient to take early and complete treatment *(b)* Look for other cases among contacts	*i.* If leprosy suspected refer for treatment *ii.* If dark mole increases in size or bleeds, refer immediately; this may be malignant
39.	Piles	*i.* Swelling protruding from anus especially on straining at stool *ii.* Often bleeding from the piles after passing a stool *iii.* Constipation *iv.* Itching at anus	*i.* Liquid paraffin or milk of magnesia at bedtime *ii.* Sink in a tub of warm water to which magnesium sulphate is added *iii.* Apply vaseline or oil to finger and gently push	*i.* For routine examination by MO *ii.* If bleeding

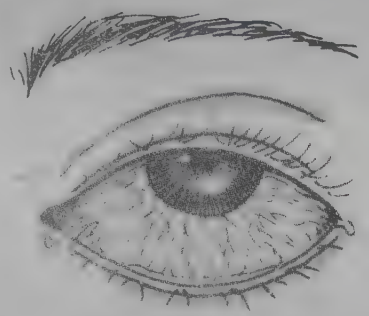
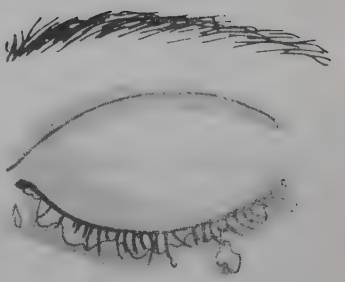
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
			piles back into anus *iv.* Advise patient to avoid constipation (See Sl. No. 13).	
40.	Prickly heat	See Sl. No. 41B, Rash—Prickly heat		
41.	Rash			
	A. Rash—Allergy	*i.* Severe itching rash all over body; the rash is raised and red *ii.* History of taking drugs or certain food, e.g. shellfish, or exposure to irritants or pollens *iii.* May be other signs of allergy, e.g. vomiting, running nose, red eyes *iv.* Observe for symptoms and signs of shock, e.g. difficulty in breathing	*i.* Antihistamine tablets *ii.* Apply calamine lotion or zinc boric dusting powder	*i.* If in shock *ii.* If difficulty in breathing

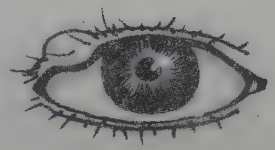




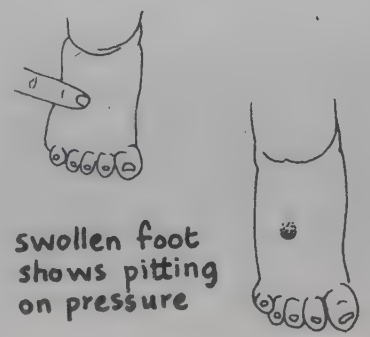
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
	B. Rash—Prickly heat	*i.* Itching; pinkish rash especially on back and folds *ii.* Occurs during hot, humid weather *iii.* No other symptoms	*i.* Frequent baths with cool water *ii.* Apply talcum powder or zinc boric dusting powder *iii.* Use light clothing *iv.* Keep babies clean and dry; use dusting powder on buttocks when napkin is changed	
42.	Ringworm	*i.* Circular, raised, pink patches with scaly centre, especially at waist and folds *ii.* Marked itching *iii.* May be in other family members	*i.* Bathe with soap and water and dry skin folds well *ii.* Apply benzoic salicylic ointment or tincture iodine *iii.* Wash and boil clothes and dry in sun before wearing *iv.* Treat all family members who are affected	*i.* If no improvement

S. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
43.	Scabies 	*i.* Blister-like eruptions especially in webs of fingers and toes, at wrists and arm-pits *ii.* Severe itching *iii.* Eruption may contain pus *iv.* May be fever *v.* Usually in other family members	*i.* Bathe and scrub affected part with brush, soap and water *ii.* Apply benzyl benzoate emulsion to affected parts (not to face); keep on for 24 hours *iii.* Wash and boil clothes and dry in hot sun before wearing *iv.* Repeat steps *i.-iii.* for 3 days *v.* If pus present, give sulphadimidine tablets *vi.* Treat all affected members in the family	*i.* If no improvement
	Skin Path	See Sl no. 38, Patch skin		

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
45.	Sore eyes (Conjunctivities) 	*i.* Stickly, purulent discharge from eyes *ii.* Pain in eyes *iii.* Redness *iv.* Eyelids tend to stick together especially after sleep *v.* Swelling of eyelids *vi.* Find out if others in family or in community have sore eyes; if epidemic, inform MO PHC	*i.* Bathe eyes with clean, warm water and cotton swabs *ii.* Apply sulphacetamide eye drops or chloromycetin eye ointment (Aplicaps) *iii.* Sulphadimidine tablets.	*i.* If severe pain *ii.* If epidemic 
46.	Sore on genitals 	*i.* 'Punched out' ulcer with hard margins on penis or vulva (syphilis) *ii.* History of sexual intercourse with an infected person *iii.* May be accompanied by purulent urethral discharge (gonorrhoea)	*i.* Advise patient to take immediate and complete treatment *ii.* Advise patient not to have sexual relations until cured	*i.* For immediate treatment

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
47.	Sore throat	*i.* Pain in throat *ii.* Hoarseness of voice *iii.* May be fever *iv.* Examine throat—look for gray or yellowish membrane on tonsils or pharynx	*i.* Hot salt water gargles several times a day *ii.* Syrup of honey, lemon juice and hot water *iii.* Sulphadimidine tablets *iv.* Vitamin C tablets *v.* Accetyl salicylic acid tablets	*i.* If no response to treatment *ii.* If membrane seen in throat *iii.* If patient looks ill *iv.* If breathing is difficult
48.	Stye 	*i.* Painful swelling on edge of eyelid *ii.* Redness of eyelid *iii.* May be purulent discharge	*i.* If pus is present, pull out eyelash in stye *ii.* Wash eye with hot water to which boric acid is added *iii.* Apply chloromycetin eye ointment (Aplicaps) *iv.* Sulphadimidine tablets *v.* Acetyl salicylic acid tablets	*i.* If no response to treatment *ii.* If abscess forms

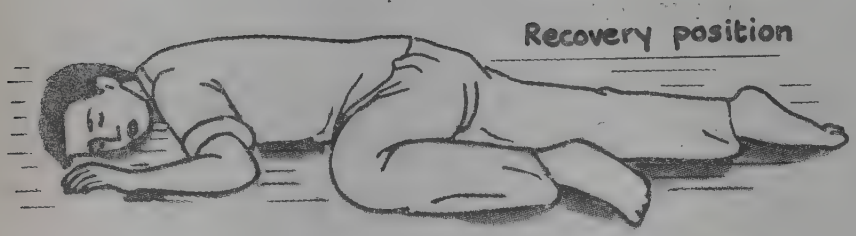
Sl. No.	Condition	Symptons and signs to look for	Treatment & Follow-up	Referral
49.	Swelling			
	A. Swelling—Breast	Swelling may be: (*a*) Swelling of whole breast, e.g. breast abscess (*b*) Localized lump in breast which may be — Painful or painless — Movable or fixed to skin	(*a*) Treat as for crack-nipples (See Sl No. 16). (*b*) —	*i.* If abscess needs incision *ii.* Always refer a case with a lump in the breast to the MO for examination
		Note: Women should be taught to examine themselves for the presence of a lump in the breast. Early referral can help in early detection and treatment of breast cancer.		
	B. Swelling—Feet (Oedema)	*i.* Often associated with pregnancy *ii.* Check urine for albumen *iii.* Check blood pressif possible *iv.* Check Hb *v.* If fever, take thick blood smears at night (filariasis) *vi.* Check for other symptoms &	*i.* Rest *ii.* Salt-free, high protein diet (dal, milk, egg, fish, meat) *iii.* Multivitamin tablets *iv.* Iron and folic acid tablets (if anaemic)	*i.* If no response to treatment *ii.* If albumen in urine *iii.* If BP is high (over 140/90) *iv.* If other symptoms or signs are present



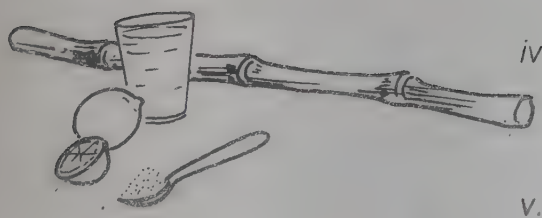
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		signs, e.g. shortness of breath, scanty urine, etc.		
	C. Swelling—Joints ALWAYS refer a child with fever accompanied by pain and swelling in the joints.	*i.* Swelling of joint may be *(a)* Following injury, e.g. sprain *(b)* Associated with fever, e.g. arthritis *ii.* Pain in joint especially on movement *iii.* Joint may be warm	*i.* Hot fomentation *ii.* Apply methyl salicylate liniment and bandage *iii.* Acetyl salicylic acid tables *iv.* Rest with joint raised	*i.* If no response to treatment *ii.* If accompanied by joint pain and fever in a child
50.	Thrush—Mouth 	*i.* Mouth of baby (tongue, lips & checks) is red and covered with curdy white spots *ii.* Sucking is painful; baby pulls away from breast or bottle *iii.* Baby is restless and irritable	*i.* Paint mouth with 1% gentian violet 2 to 3 times a day *ii.* Advise mother about hygiene in feeding the bay (cleanliness of bottle & nipple, need to give baby water to drink, avoid cleaning out mouth with gauze or cloth, etc.)	*i.* If no response to treatment

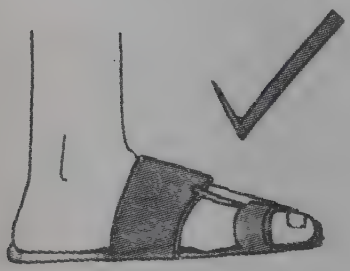
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
51.	Toothache	*i.* Pain on tapping tooth gently with a spoon *ii.* Tooth may show a cavity *iii.* May be swelling or redness of gum around tooth *iv.* May be fever	*i.* Frequent mouth-wash with warm salt water *ii.* Apply clove oil on small cotton wool swab or keep clove on tooth and ask patient to bite on it *iii.* Acetyl salicylic acid tablets *iv.* If fever, paracetamol tablets	*i.* If tooth looks decayed *ii.* If abscess present
52.	Ulcer	*i.* Break in surface of skin or mucous membrane *ii.* Area looks raw & red *iii.* May be purulent or watery discharge *iv.* May be single or multiple ulcers	*i.* Hot fomentations with magnesium sulphate *ii.* Clean ulcer with cotton wool swabs and clean with boiled water to which boric acid powder or antiseptic lotion is added *iii.* Apply acriflavine ointment, gauze, cotton wool and bandage *iv.* Sulphadimidine tablets	*i.* If no improvement in 5 days *ii.* If ulcer on genital organs

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
			v. If ulcer on genital organs, treat as for Sl. No. 46.	
53.	Unconsciousness	i. Take and record TPR ii. Take BP if possible iii. Ask for history of diabetes, alcohol, drugs, injury	i. Place patient in recovery position ii. Keep patient warm and quiet and ensure adequate ventilation iii. Treat for shock, bleeding, fracture, etc. iv. Give artificial respiration if required v. *Do not leave patient unattended*	i. Refer immediately; continue first aid during transport
54.	Vaginal bleeding	i. Bleeding from vagina may be (*a*)associated with pregnancy (*b*)not associated with pregnancy ii. Check pulse and BP (if possible) iii. May be pain or history of passing products of con-	i. Vitamin C tablets ii. Calcium gluconate tablets iii. Bed rest (if bleeding during pregnancy) iv. Ergometrine maleate tablets (if postpartum or using IUD) v. Injection methyl er-	i. If no response to treatment ii. For gynaecological examination iii. Refer immediately if bleeding during pregnancy, especially in last trimester



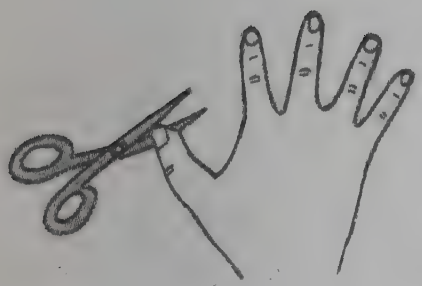
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
		ception (abortion) *iv.* May be profuse, prolonged menstrual periods (menorrhagia) *v.* May be spotting between periods e.g. if OC or IUD used	gometrine maleate (if severe post-partum bleeding)	
55.	Vaginal discharge	See Sl. No. 18 D, Discharge-Vagina		
56.	Vomiting	*i.* Unable to retain food and at times even water *ii.* Nausea *iii.* May be associated with pregnancy *iv.* May be pain in abdomen, diarrhoea or fever *v.* Look for yellow eyes. *vi.* Look for other cases in the community	*i.* Prochlorperazine tablets *ii.* Plenty of sweetened fruit juice, sugarcane juice, etc. *iii.* Oral Rehydration Salt Solution *iv.* Give dry biscuits, toast, rice and other bland foods; avoid fried food	*i.* If no response to treatment *ii.* if associated with (*a*) pain in abdomen and fever (*b*) constipation and pain in abdomen (*c*)jaundice *iii.* If epidemic of diarrhoea and vomiting



Sl. No.	Condition	Symptoms and signs to look for	Treatment & Follow-up	Referral
57.	Worms—			
	A. Worms-Hookworm 	*i.* Anaemia *ii.* Loss of appetite *iii.* Microscopic examination of stools shows hook worm eggs	*i.* Bephenium hydroxy naphthoate granules or Mebendazole tablets* *ii.* Advise use of footwear when walking in the fields *iii.* Advise use of sanitary latrine	*i.* If severe anaemia
	B. Worms-Roundworm	*i.* Worms passed in stool; in severe infestation worms may be vomited *ii.* Distension of abdomen *iii.* Initially increase and later decrease in appetite *iv.* Pain in abdomen	*i.* Piperazine citrate tablet or piperazine adipate tablets or mebendazole tablets* *ii.* Examine and treat others in family, especially children, for roundworm *iii.* Educate mothers and children about need to wash fruit and vegetables before eating raw, washing	*i.* If vomiting worms *ii.* If severe colicky pain

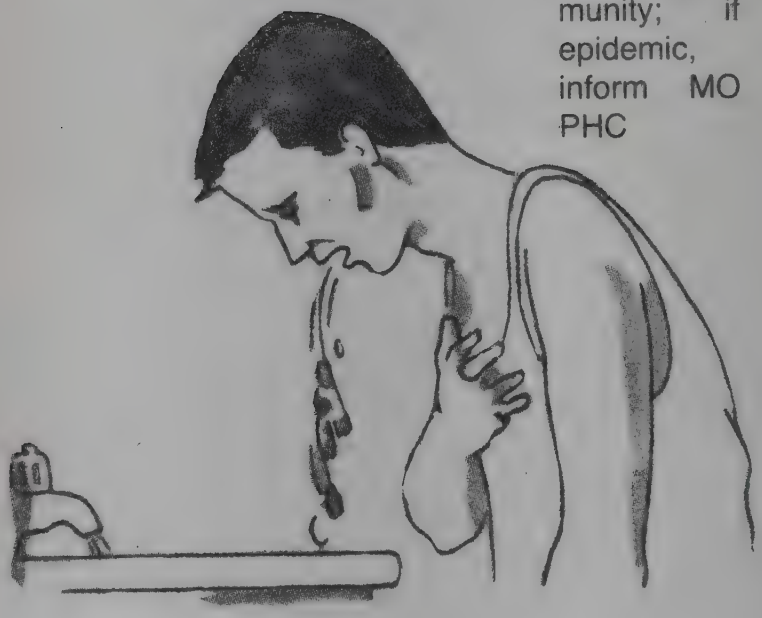
Sl. No.	Condition	Symptoms and signs to look for	Treatment & Followup	Referral
			hands after toilet and before food, not eating food from floor or mud, using sanitary latrines, etc.	

C.	Worm Threadworm	*i.* Itching at anus or vulva, especially at night *ii.* Bunches of thread-worms may be seen in the stool	*i.* Piperazine citrate tablets or piperazine adipate tablets or mebendazole tablets* *ii.* Advise washing clothes and bed clothes, washing hands before meals, cutting nails, etc.	*i.* If no response to treatment



**Note* : Mebendazole tablets should not be given to pregnant women

Sl. No.	Condition	Symptoms and signs to look for	Treatment & Followup	Referral
58.	Yellow eyes (Jaundice)	*i.* Eyes have a yellow colour *ii.* Urine is highly coloured (like strong tea without milk) *iii.* Usually nausea and vomiting *iv.* Pain over liver area *v.* May be fever *vi.* May be itching of skin *vii.* Look for other cases in the community; if epidemic, inform MO PHC	*i.* Bed rest *ii.* Plenty of sugar cane juice and sweetened fruit juice *iii.* Oral Rehydration Salt Solution if dehydrated	Always refer a case of jaundice to the PHC or call the MO PHC especially if the patient is: *i.* an infant *ii.* a pregnant woman



Things to do

1. Go through the clinic register of your Subcentre. What are the ailments most frequently seen? what percentage of the cases seen were referred to the PHC?

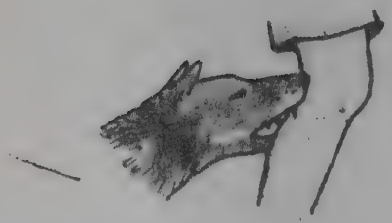
2. At your Subcentre do you have all the medicines listed in Annexure 23.1? If not, which medicines are not available? Do you have some alternative medicines which can be used instead? Are you supplied with some additional medicines besides those mentioned in Annexure 23.1?

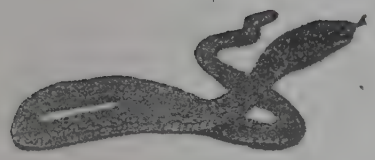
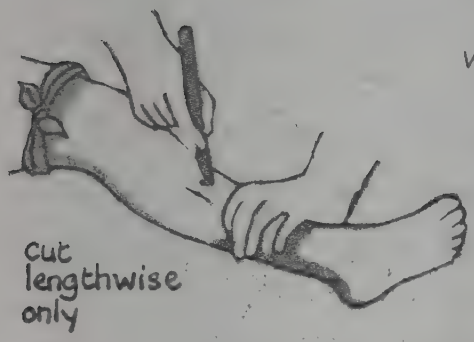
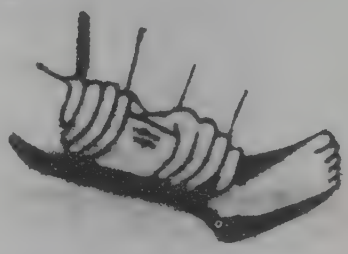
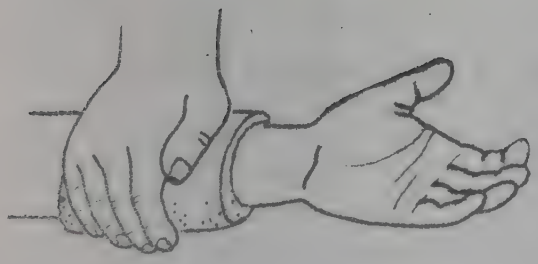
3. In our country there are many well known plants which are useful in the treatment of certain common ailments like fever, sore throat, constipation, indigestion, etc. Such plants include basil (tulsi), black pepper (kali mirch), citron (mahanimbu), coriander (dhania), garlic (lasun) ginger (adrak), margosa (neem), mint (pudina) and turmric (haldi).

Are any of these or other plants used in your area for the treatment of common ailments?

Try to collect information about these simple home remedies under the following headings: Botanical or English name of plant; Local name; Parts used; Common uses; preparation and dose; Remarks (e.g. your own experience of using the plant).

Timely and proper first aid can save a life.

Sl. No.	*Condition*	*Treatment*	*Referral*
1.	Abdominal Wound	See Sl. No. 34.1, Wound of Abdomen	
2.	Abrasion	See Sl. No. 33.1, Wounds Abrasion	
3.	Bee Sting	See Sl. No. 21.1, Insect Sting—Bee	
4.	Bites		
4.1	Bites—Dog (or bites of other animals) 	*i.* Wash wound thoroughly with soap, running water and antiseptic lotion. *ii.* Apply mercurochrome or tincture iodine. *iii.* Dress and bandage. *iv.* Give sulphadimidine tablets. *v.* Give tetanus toxoid. *vi.* Do not kill the dog. Tie and observe for 10 days.	
4.2	Bites—Snake	*i.* Make the patient lie down. Do not let the patient move. *ii.* Apply a tourniquet, or handkerchief, or piece of rope above the bite. Release for one minute every half an hour.	*Refer immediately* for antivenin.

Sl. No.	Condition	Treatment	Referral
	 	iii. Wipe wound to remove excess of poision. iv. With a clean blade make 4 to 6 cuts 1 cm deep over area of bite. v. Squeeze out blood. vi. Wash cuts with soapy water or antiseptic lotion. vii. Apply clean gauze or cloth on cuts. viii. Splint limb to prevent movement and keep it lower than rest of body. Treat for shock. Calm down the patient and give hot tea or coffee. ix. Give artificial respiration if necessary.	
5. Bleeding 5.1 Bleeding—General		i. Lay the patient down and raise the injured part. ii. Apply firm pressure over a pad to the site and maintain until bleeding is controlled. iii. If venous bleeding from limb (oozing or steady flow of blood), apply pressure below wound. If arterial bleeding (severe and in spurts), apply a tourniquet above the wound.	Refer immediately: i. If patient is in shock. ii. If bleeding cannot be controlled. iii. If arterial bleeding. Accompany patient to look after tourniquet.

Sl. No.	Condition	Treatment	Referral

iv. When bleeding is controlled, apply a dressing and firm bandage.
v. Treat for shock.
vi. If upper limb, place in a sling. If lower limb, keep raised.

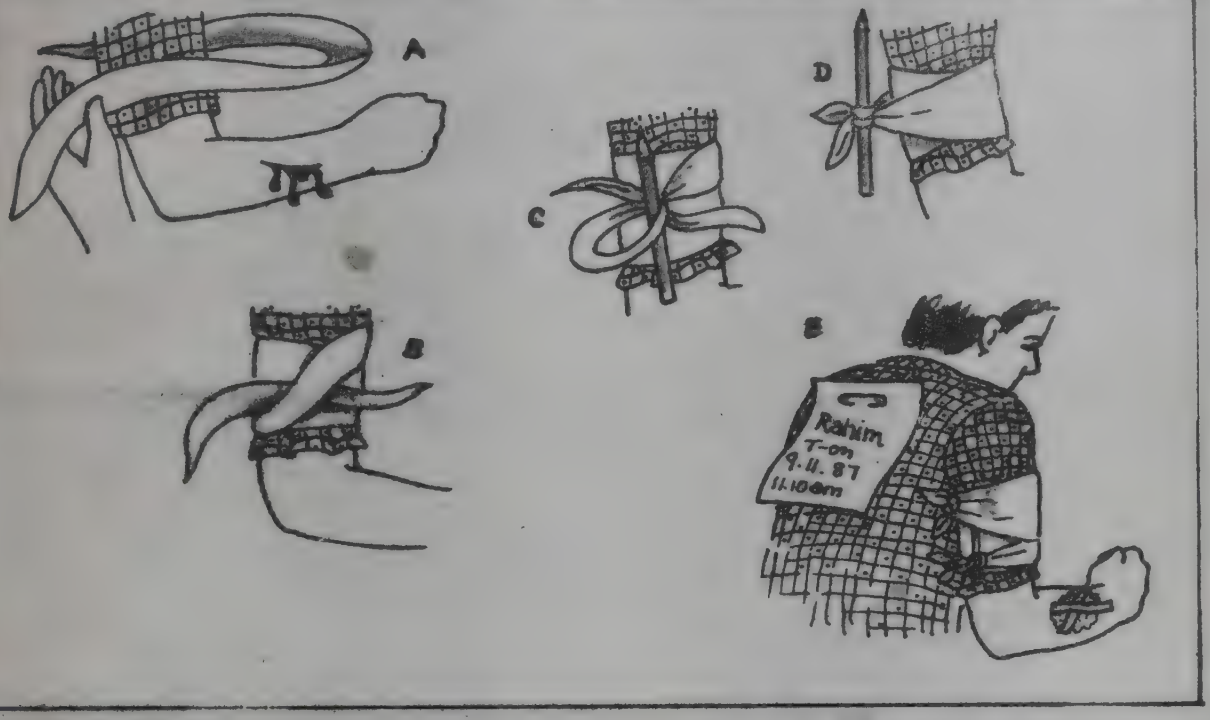
IMPROVISED TOURNIQUET

A narrowfold triangular bandage, a handkerchief, a broad belt, or any other piece of material of sufficient length, can be used as an improvised tourniquet.

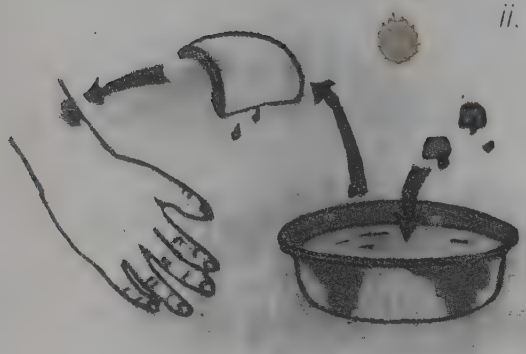
Proceed as follows:

i. Fold the triangular bandage or handkerchief to a width of 5 cm.
ii. Apply it on clothing at the level of the middle of the upper or lower limb.
iii. Tie the free ends of the bandage in a half-knot on the outer side of the limb.
iv. Place a pencil, piece of wood, spoon, etc. on the half-knot.
v. Complete the knot to hold the pencil in position.
vi. Twist the pencil gradually so as to tighten the bandage until the bleeding stops.
vii. Use a second bandage tied around the limb to keep the pencil in the tightened up position.
viii. Leave the tourniquet in place, but **loosen it gently every 15 minutes.**
ix. If the bleeding has stopped, leave the tourniquet in place but do not tighten it up again.
x. If the bleeding starts again, tighten the tourniquet and repeat steps vi, vii and viii.
xi. Go with the patient to the Primary Health Centre, if possible, so than you can control the bleeding on the way.
xii. Attach a label or a piece of paper to the patient's shirt showing the time when the tourniquet was applied.

Note: A tourniquet is a very useful appliance to use if there is any open fracture of a limb.

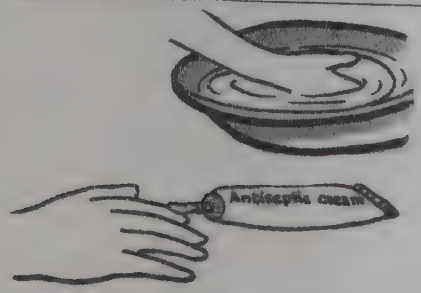
Sl. No.	Condition	Treatment	Referral
			
5.2 Bleeding—Nose	*i.* Make patient sit up with head erect and bent forward. *ii.* Loosen all clothing at neck. *iii.* Ask patient to pinch nose at junction of hard and soft parts. Do not let him blow the nose. *iv.* Apply a cold compress.	*i.* If bleeding cannot be controlled. *ii.* If patient is elderly.	
5.3 Bleeding—Palm	*i.* Make patient sit or lie down. *ii.* Place pad of cotton wool or gauze in hand. *iii.* Make patient clench fist tightly and bandage clenched fist. *iv.* Place arm in sling. *v.* Treat for shock.	*i.* If moderate or severe bleeding. *ii.* If patient cannot move thumb or fingers normally.	

Sl. No.	Condition	Treatment	Referral
	5.4 Bleeding—Tooth socket	*i.* Place a cotton wool or gauze pad over bleeding socket. *ii.* Ask patient to bite hard on it for 10 to 20 minutes. *iii.* Support or bandage the chin to keep the mouth tightly closed. *iv.* Do not wash out the mouth. *v.* Do not plug the tooth socket.	*i.* If bleeding cannot be controlled.
	6. Bruise	*i.* Place the injured part at rest in the most comfortable position. *ii.* Apply a cold compress using: *(a)* a thin towel, handkerchief or cotton wool soaked in cold water; *or* *(b)* fill a polythene bag two-thirds full of crushed ice and common salt. Expel the air, tie up the bag, wrap it in a thin towel, and apply it to the bruise.	*i.* If fracture or dislocation is suspected.
	7. Burns	*i.* Immerse the part in cool water for at least 10 minutes. This will relieve the pain. *ii.* Do not try to remove clothing which is sticking to the burns. However, re-	Refer lying down: *i.* If in shock. *ii.* If burns are extensive and deep.

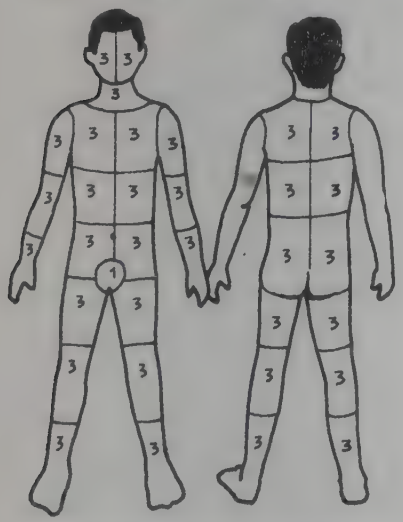


Sl. No.	Condition	Treatment	Referral
		move anything constricting, e.g., rings, bangles, shoes, belts, etc. before the part begins to swell. ii. Do not prick any blisters. iii. Paint exposed areas with gentian violet, apply vaseline or acriflavine ointment, cover with sterile gauze or clean cloth, and bandage. v. Immobilize a burned limb. vi. Give sulphadimindine tablets. vii. Give acetyl salicylic acid tablets. viii. Give weak tea or milk with plenty of sugar. If medical aid is delayed, give rehydration mixture. ix. Treat for shock.	
8.	Chest Wound	See Sl. No. 34.2, Wounds of Chest.	
9.	Dislocation	i. Treat for shock. ii. Support limb in most comfortable position to avoid jarring. iii. *Do not try to reduce the dislocation.* iv. Do not give anything to drink.	Refer immediately.

If more than $\frac{1}{3}$ (33%) of the body is burnt or scalded, death is likely to occur.



Percentage distribution of skin surface



Sl. No.	Condition	Treatment	Referral
10.	Dog bite	See Sl. No. 4.1, Bites—Dog	
11.	Drowning	*i.* Turn patient face downwards, place arms around patient's abdomen and raise body to let water out of lungs. *ii.* Clear mouth of weeds, false teeth, etc. Pull tongue forward. *iii.* Loosen clothing around neck and waist. *iv.* Give artificial respiration or mouth-to-mouth respiration	Refer immediately.

Artificial Respiration

Breathing can stop in cases of:
- drowning
- electric shock
- choking due to something stuck in the throat
- choking from smoke
- poisoning
- unconsciousness (blocking of the throat by the tongue or thick mucus)
- a heart attack

If a person does not breathe for 4 minutes he will die. The brain is quickly damaged by lack of oxygen and damage to brain cells is permanent. So even if a person survives, he may be mentally crippled for life.

If a person stops breathing, **start artifical respiration immediately.**

Mouth-to-Mouth respiration

i. Quickly remove anything stuck in the mouth or throat.

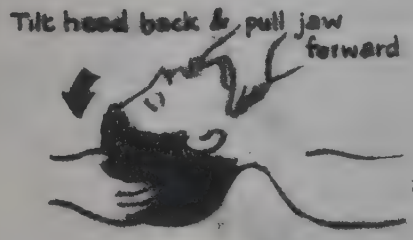
ii. Lay the person on his back. Tilt his head back and pull his jaw forward.

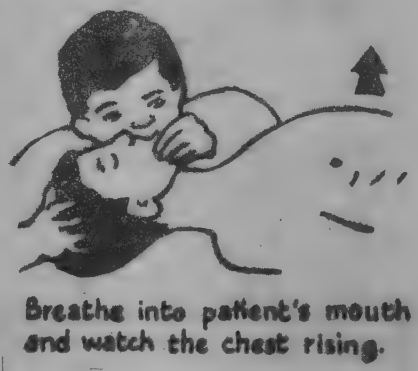
iii. Take a deep breath. Cover his mouth with your mouth and blow air strongly into his lungs so that his chest rises.

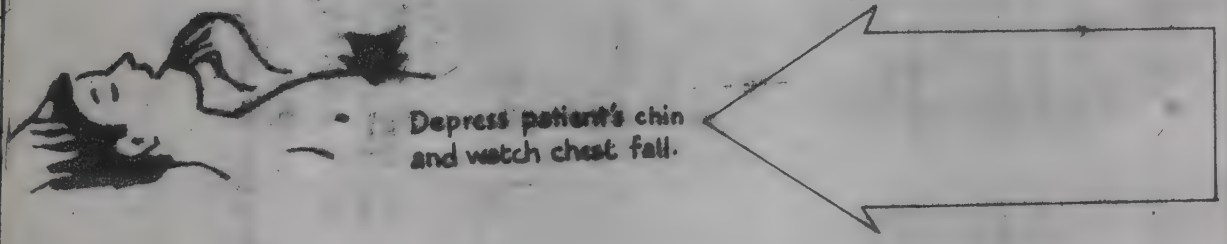
iv. Stop to let the air come out. Depress the chin and watch the chest falling.

v. Repeat steps iii and iv 15 to 20 times a minute, i.e. every 3 to 4 seconds.

vi. Continue mouth-to-mouth breathing until the person can breathe by himself or until there is no doubt that he is dead. You may have to continue for an hour or more.







Silvester method of artificial respiration

i. Lay the patient on his back on a firm surface.

ii. Raise his shoulders on a folded cloth.

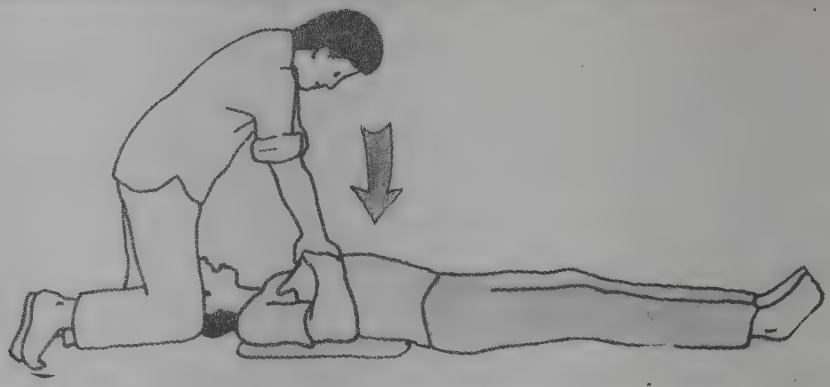
iii. Extend the head backward to keep the airway clear.

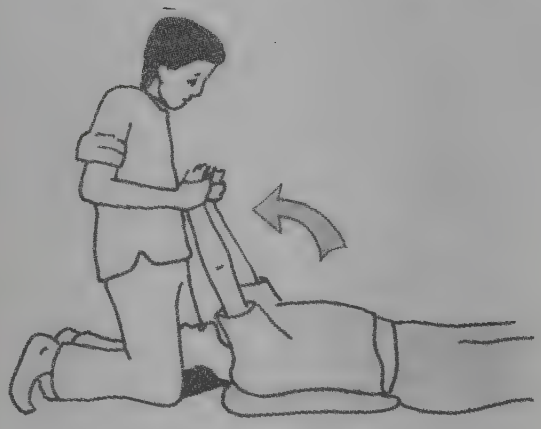
iv. If necessary turn the patient's head to one side to clear out the mouth.

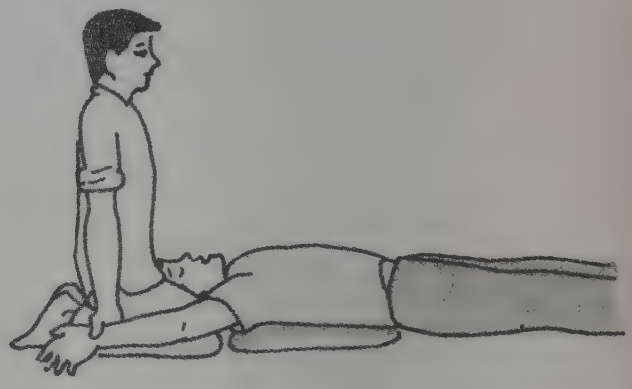
v. Kneel astride the patients head.

vi. Grasp his wrists and cross them over the lower part of his chest.

vii. Rock your body forward and press down on the patient's chest.





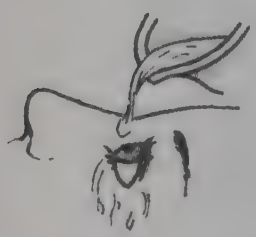


viii. Release the pressure and with a sweeping movement draw the patient's arms backwards and outwards as far as possible.

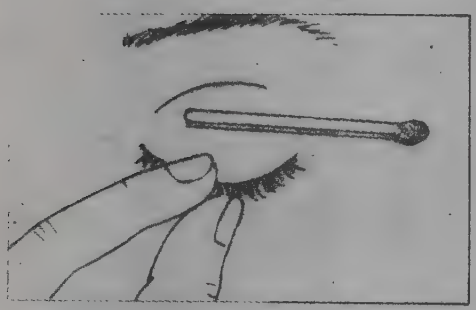
ix. Repeat steps vi to viii rhythmically 12 times a minute in an adult.

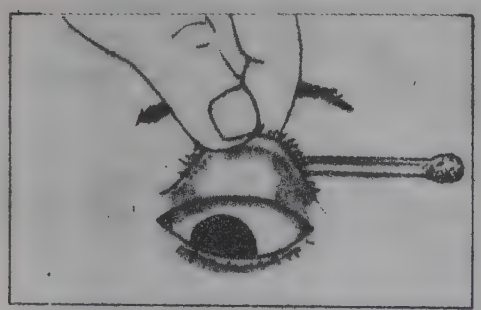
x. Transfer the patient lying on a stretcher to the nearest PHC or hospital as early as possible. Continue giving artificial respiration on the way.

12. Electric shock	*i.* Put off main switch if possible.	Refer immediately.
	ii. If low voltage, remove patient from electric current by using a dry piece of wood or a stick to pull him away. Stand on a rubber mat, or piles of newspapers, or wear rubber soled shoes.	

Sl. No.	Condition	Treatment	Referral
		iii. Loosen clothing. Give artificial respiration or mouth-to-mouth respiration and continue during transport. *iv.* Relieve pain with acetyl salicyclic acid tablets. *v.* Treat any electric burns.	
13.	Exposure to cold & frost bite	*i.* Protect person from wind, rain and cold *ii.* Wrap him in dry, warm clothing or blankets. *iii.* Give warm, sweetened drinks. *iv.* Do *not* use direct heat or hot water bottles or rub the frost bitten parts. *v.* Transport in recovery position.	Refer immediately.
14.	Eye injury 	*i.* Wash eye with cool, boiled water. *ii.* Cover eye with clean eye pad and bandage lightly.	*i.* For treatment.
15	Fainting	*i.* Loosen clothing at neck, chest and waist. *ii.* Lay patient down with legs above	

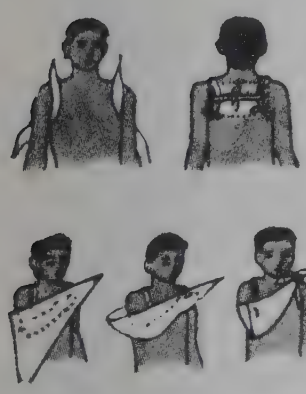
Sl. No.	Condition	Treatment	Referral
		level of head, **or** let him sit down and lower his head between his knees. *iii.* See that he gets fresh air. *iv.* On recovery, ask him to breathe deeply and give sips of water.	
16.	16.1—Foreign body—Ear	*i.* Apply sulphacetamide ear drops or put warm coconut oil in the ear. *ii.* Do *not* attempt to remove the foreign body.	*i.* For removal.
	16.2 Foreign body—Eye	*i.* Prevent patient from rubbing the eye. *ii.* Pull down lower lid to see if foreign body is there. If seen, try to remove it by gently drawing the corner of a clean, wet handkerchief across the foreign body. *iii.* If not seen, pull the upper lid downwards and outwards over the lower lid to remove the foreign body; *or* stand behind patient, ask him to look down, place a matchstick along the base of the upper lid,	Refer immediately *i.* If foreign body is on the pupil, or is adherent to the eyeball. *ii.* If foreign body is not seen but eye is red and painful.



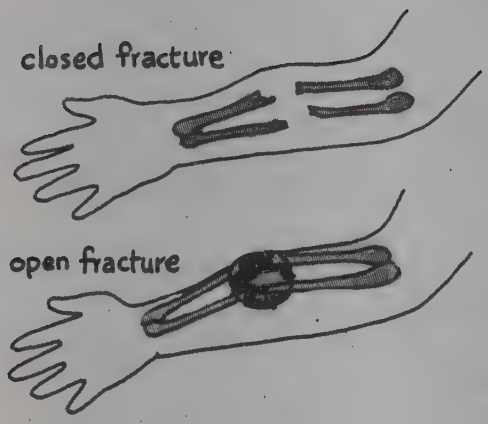


Sl. No.	Condition	Treatment	Referral
		hold the eyelashes firmly between the thumb and forefinger, and fold the eyelid over the matchstick. Remove foreign body. *iv.* If foreign body is not seen, or it is on the pupil, or it is adherent: *(a)* Apply sulphacetamide eye drops. *(b)* Apply clean eye pad and bandage lightly. *(c)* Transfer to PHC.	
16.3	Foreign body — Nose	*i.* Insert 2 to 3 drops liquid paraffin in nose. *ii.* Block ears, mouth and normal nostril with fingers. Ask patient to blow as hard as possible. Tickle nostril with a feather and try to make patient sneeze.	*i.* If first aid fails.

Sl. No.	Condition	Treatment		Referral
16.4	Foreign body — Throat	Infant:	*i.* Hold up by legs. Smack three to four times between shoulders. *ii.* Give artificial respiration if required.	*i.* If foreign body cannot be dislodged.
		Child:	*i.* Lay child over your knees head downwards. Slap three to four times between shoulders. **or** Hold child around waist bending forwards and press your fist suddenly on abdomen. *ii.* Give artificial respiration if required.	
		Adult:	*i.* Strike three to four sharp blows between shoulders. **or** Hold around waist	

Sl. No.	Condition	Treatment	Referral
		bending forwards and press your fist suddenly on abdomen. *ii.* Give artificial respiration if required.	
17	Fracture		
17.1	Fracture — Collar bone 	*i.* Place a pad in the armpit on the injured side. *ii.* Pass a narrow-fold bandage around each armpit to make a ring and brace back the shoulders with a bandage across the back. *iii.* Place the arm across the chest in a sling.	Refer immediately.
17.2	Fracture — Jaw	*i.* Remove any false or detached teeth. *ii.* Support jaw with soft pad held in place by hand or bandage. *iii.* If not severely injured, patient should sit up with head well forward. If severely injured, place in recovery position.	Refer immediately.

Sl. No.	Condition	Treatment	Referral
17.3	Fracture — Limb	*i.* Place patient in comfortable position with injured part well supported. *ii.* Apply splint and bandage. Remember to immobilize joints above and below fracture site. *iii.* *Never attempt to set the fracture.* *iv.* Treat for shock. Do not give anything to drink. *v.* If open fracture: Cut away clothing over wound, stop bleeding, and cover with a dry, sterile dressing.	Refer immediately.



Splints

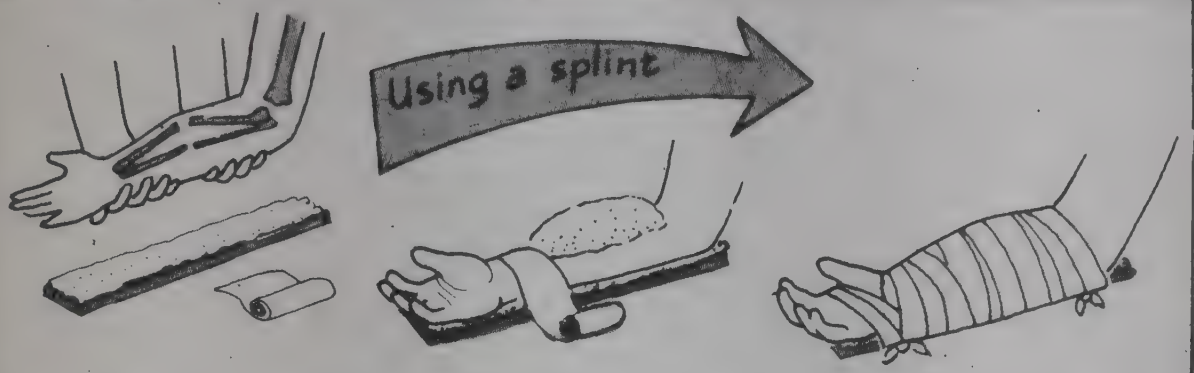
A splint is a rigid appliance, usually made of wood or metal, which is tied to a fractured limb to support it and prevent movement from taking place at the site of fracture. Splints can be improvised by using any article which is rigid enough and of sufficient length for the purpose for which it is required. Rolled newspapers, magazines, a branch of a tree, etc. can be used for splinting in an emergency.

The body itself can be used for splinting purposes, e.g. a fractured arm can be strapped to the side of the chest to immobilize it, or a fractured leg can be tied to the other leg.

If a splint is not used properly, it may cause damage. Therefore, remember the following points when using a splint:

* Make sure that the fractured area is properly supported while placing it on the splint.

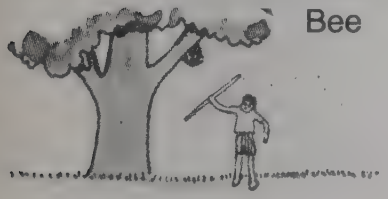
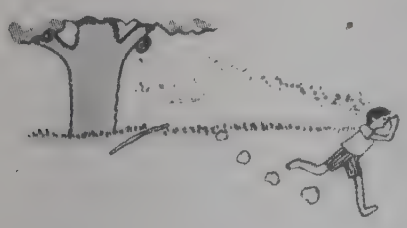
Sl. No.	Condition	Treatment	Referral



* Make sure that the splint is well padded with cloth. This is particularly important when splints are improvised from pieces of wood which are uneven.
* Make sure that the splint is sufficiently long to immobilize the joint above and the joint below the fracture.
* Make sure that the bandages used to secure that splint have the knot tied on the splint and not on the flesh.

17.4	Fracture — Skull	*i.* Apply clean, sterile dressing to ear or nose from where bleeding occurs. *ii.* Turn patient's head to side from where bleeding comes. *iii.* Place in recovery position with head elevated. *iv.* Treat for shock.	Refer immediately.
17.5	Fracture — Spine	*i.* Do not let patient move. *ii.* Keep shoulders and pelvis steady, place soft pads between thighs, knees and	Refer immediately.

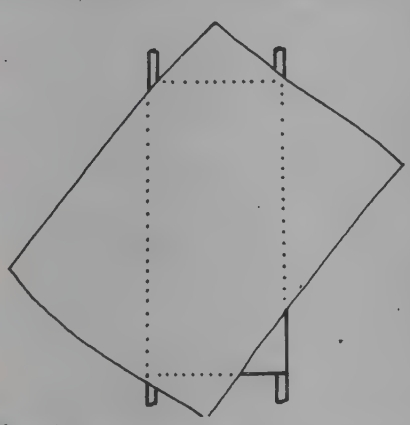
Sl. No.	Condition	Treatment	Referral
		ankles, and tie together thighs, knees and ankles. *iii.* Keep both arms close to body and tie them to body at elbows and wrists. *iv.* Transport face down or upwards supported by blankets and pillows at neck, back, knees and ankles. Use a rigid board or door covered with a blanket to carry the patient. Do not allow the spine to bend while carrying the patient. *Note:* If neck injury, do not use pillow under neck. Do not let head tilt forwards or sideways.	
18	Haemorrhage	See Sl. No. 5, Bleeding	
19	Head Wound	Treat as for Unconsciousness See Sl. No. 32.	
20	Heatstroke	*i.* Put patient in the shade in the coolest and airiest place. *ii.* Keep him in the recovery position.	Refer immediately.

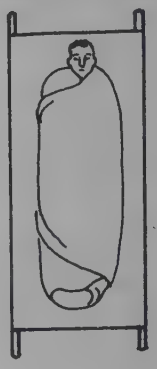
Sl. No.	Condition	Treatment	Referral
		iii. Undress him completely and wrap him in a cold, wet sheet. Keep sheet wet till temperature reaches 38°C. *iv.* Keep fanning the patient. *v.* If conscious, give him plenty of cold water with salt to drink. Add ½ tea-spoon salt to 500 ml water especially if patient has sweating, cramps or diarrhoea. *Note:* If patient has heat exhaustion, omit steps *iii.* & *iv.* Keep patient comfortably warm.	
21	Insect sting 21.1 Insect sting — Bee  	*i.* Remove sting sideways with forceps. *ii.* Apply alkali, e.g. soda bicarb, to site. *iii.* Apply cold compresses. *iv.* Give acetyl salicylic acid tablets. *v.* Give antihistamine tablets. *vi.* Treat for shock.	*i.* If in shock.
	21.2 Insect sting — Wasp	*i.* Remove sting. *ii.* Apply weak acid, e.g. vinegar, to	*i.* If in shock.

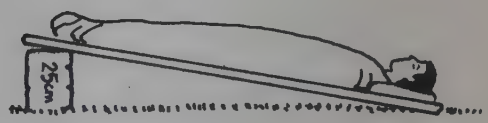
Sl. No.	Condition	Treatment	Referral
		site. *iii.* Apply cold compresses. *iv.* Give acetyl salicylic acid tablets. *v.* Give antihistamine tablets. *vi.* Treat for shock.	
22	Jellyfish sting	See Sl No. 31.2, Sting — Jellyfish	
23	Lacerated wound	See Sl No. 33.3, Wounds — Lacerated wound	
24	Poisoning	*i.* If conscious: *(a)* Try to find out what poison has been swallowed. *(b)* Try to induce vomiting by tickling back of throat or giving salt solution. *Note:* If poisoning by kerosene oil, do *not* induce vomiting. *ii.* If burns of lips and mouth: Give water, milk or egg white. *iii.* Treat for shock. *iv.* Give artificial respiration or mouth-to-mouth respiration. Con-	Refer immediately.

Sl. No.	Condition	Treatment	Referral
		tinue during transport.	
25.	Punctured wound	See Sl. No. 33.4, Wounds — Punctured wound	
26.	Scalds	*i.* Treat for shock. *ii.* Do not remove clothing if adherent to scalds. *iii.* Apply gentian violet and vaseline or acriflavine ointment to exposed parts. *iv.* Dress and bandage. *v.* Give acetyl salicylic acid tablets to relieve pain.	Refer lying down: *i.* If extensive scalds. *ii.* If in shock.
27.	Scorpion sting	See Sl. No. 31.3, Sting — Scorpion	
28.	Shock	*i.* Lay the patient down on a stretcher or charpoy with the foot raised about 25 cm. *ii.* Keep him warm. *iii.* If conscious, give strong hot tea with plenty of sugar (except if patient is expected to undergo anaesthesia). *iv.* Give first aid for bleeding, fractures, bites, etc.	Refer lying down *after* patient has recovered from primary shock.

Sl. No.	Condition	Treatment	Referral
		v. Avoid unnecessary handling of the patient.	







Shock usually occurs following a severe injury, bleeding, pain or emotional upset. Shock may occur:

— immediately after injury;
— within half an hour to several hours after injury when it is caused by loss of blood externally or internally.

Signs of shock are:
* Pallor of face and lips
* Beads of sweat on the forehead
* Cold hands and feet
* Shallow breathing
* Rapid and feeble pulse
* Vomiting
* Restlessness
* Unconsciousness (at a later stage)

The treatment of shock takes priority over any other treatment except bleeding.

29.	Snake bite	See Sl. No. 4.2, Bites — Snake	
30.	Sprain	*i.* Rest and support the injured joint. *ii.* Apply cold compresses.	*i.* If in doubt whether dislocation or fracture is present.

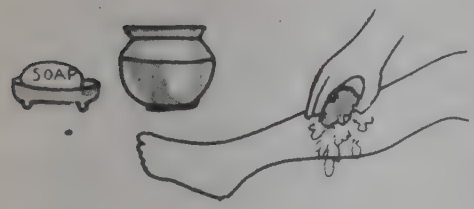
Sl. No.	Condition	Treatment	Referral
		iii. Apply wet gauze or cotton wool around joint and bandage firmly. iv. If upper limb, place in a sling. If lower limb, raise limb. v. Give acetyle salicylic acid tablets to relieve pain.	ii. If pain and swelling persist.
31.	Sting		
	31.1 Sting—Bee	See Sl No. 21.1, Insect Sting—Bee	
	31.2 Sting—Jellyfish	i. Apply methylated spirit to site. ii. Apply cold compresses. iii. Give acetyl salicylic acid tablets to relieve pain. iv. Give antihistamine tablets. v. Treat for shock.	i. If in shock.
	31.3 Sting—Scorpion	i. Apply constricting bandage above sting but not for more than half an hour. ii. Treat for shock. iii. Apply cold compress or ice. iv. Give acetyl salicylic acid tablets to relieve pain. v. Give water or hot milk with sugar.	Refer immediately i. If in shock. ii. If petient is a child.
	31.4 Sting—Wasp	See Sl No. 21.2, Insect sting—Wasp	
32.	Unconsciousness	i. Make sure that there is no obstruction of air passage: remove dentures, clear mouth of mucus, blood, vomit or detached teeth	Refer immediately.

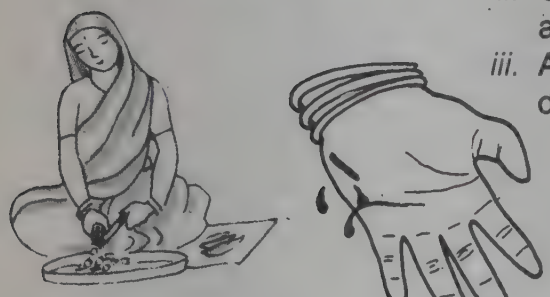
Sl. No.	Condition	Treatment	Referral
		using a handkerchief; loosen clothing at neck, chest, and waist. *ii.* Ensure plenty of fresh air: open windows or doors, remove patient from harmful gases. *iii.* If breathing stops, give artificial respiration. *iv.* Control bleeding, immobilize fractured limbs, and dress wounds, *v.* Place patient in recovery position with head slightly lower than feet to allow blood, vomit or other secretions to drain out. (*Exception*: Fracture of the spine or pelvis where patient should lie flat on his back). *vi.* Press head backward and lower jaw forward to prevent tongue falling backwards and choking patient. *vii.* Wrap or cover with blanket. *viii.* Moisten lips with water but do not give anything to drink. *ix.* Do not leave the patient unattended.	

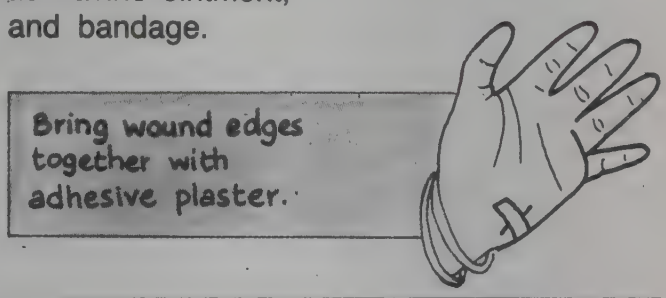
Recovery position

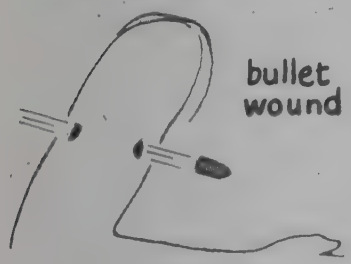
33. Wounds			
33.1 Wounds—Abrasion		*i.* Wash wound with clean, boiled water and soap. *ii.* Remove any grit or other foreign matter. *iii.* Wash with antiseptic lotion.	*i.* If infection.

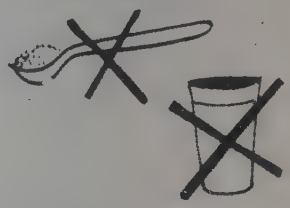
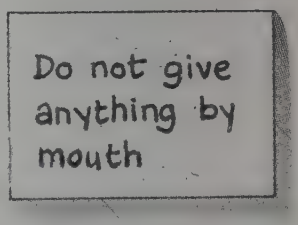
Sl. No.	Condition	Treatment	Referral
		iv. Apply mercurochrome or acriflavine ointment, cover with gauze and bandage. *v.* If extensive, give sulphadimidine tablets. *vi.* If dirty, dress every two days. *vii.* Give tetanus toxoid.	
33.2 Wounds—Incised wound		*i.* Control bleeding. *ii.* Clean wound with water and antiseptic lotion. *iii.* Apply acriflavine ointment, dress and bandage.	*i.* for suturing if wound is large.
33.3 Wounds—Lacerated wound		*i.* control bleeding. *ii.* Clean wound with soap and boiled water. *iii.* Apply antiseptic lotion. *iv.* Apply acriflavine ointment, dress and bandage. *v.* Give sulphadimidine tablets. *vi.* Give tetanus toxoid.	*i.* If severe bleeding. *ii.* If infection.
33.4 Wounds—Punctured wound		*i.* Control bleeding. *ii.* *Clean wound with soap and water.* *iii.* Apply antiseptic lotion and acriflavine ointment, drees and bandage. *iv.* Do not attempt to remove bullet, glass or weapon from wound.	Refer immidiately *i.* *If punctured wound of chest or abdomen.* *ii.* If bullet, glass or weapon lodged in wound.

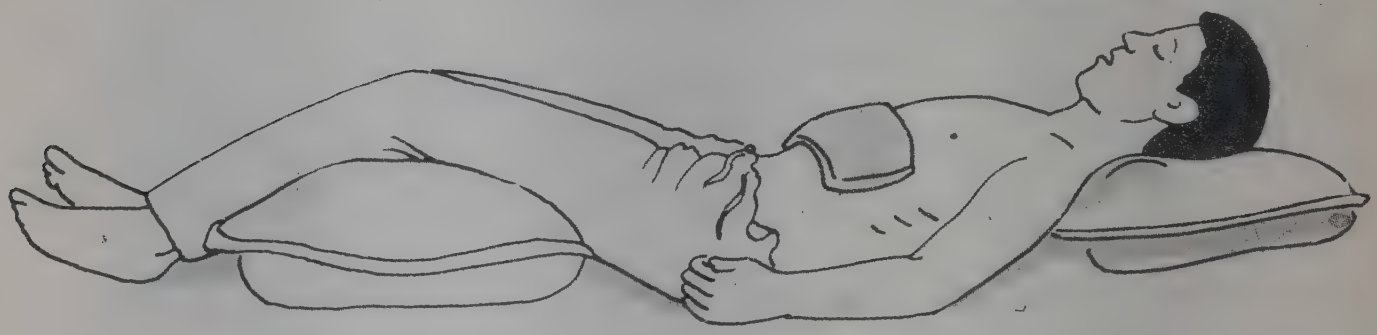








Sl. No.	Condition	Treatment	Referral
34. Wounds of:			
34.1 Wounds of Abdomen		*i.* Treat for shock but do not give anything to drink. *ii.* Lay the patient down with head and shoulders slightly raised and knees bent with pillow under them. *iii.* Cover wound and any protruding bowel with clean, dry dressing or clean towel. *Do not attempt to replace protruding organs.*	Refer immediately.  
34.2 Wounds of Chest		*i.* Treat for shock but do not give anything to drink. *ii.* Loosen any tight clothing. *iii.* Do not attempt to remove any object stuck in the wound, e.g. a knife. *iv.* Cover wound with sterile, dry dressing and secure by strapping or bandaging arm to chest. *v.* Lay the patient down with head and shoulders raised and supported, and with body turned towards injured side.	Refer immediately.
34.3 Wounds of Head		Treat as for Unconsciousness (See Sl No. 32).	



Act quickly, quietly and methodically

Remember the following points in giving first aid to the injured:

* give priority to the most urgent conditions.

* If breathing has stopped or is failing, give artificial respiration by mouth-to-mouth respiration or by other methods.

* Control bleeding.

* Treat for shock.

* Reassure the injured person and those around and so help to lessen anxiety.

* Before moving the person immobilize any fractures or wounds.

* If necessary, arrange without delay for careful conveyance of the person to the PHC or hospital.

* Keep a special watch on:
  — the rate and depth of breathing;
  — the colour and temperature of the face and skin;
  — bleeding from the ear, nose and mouth.

* **Do not** attempt to do too much.

* **Do not** allow people to crowd around; this hinders first aid and may cause the injured person anxiety or embarrassment.

* **Do not** remove clothing unnecessarily.

* **Do not** give anything by mouth to a person who is unconscious, who has a suspected internal injury, or who may shortly need an anaesthetic.

Things to do

1. Go through the table on first aid in this chapter. Make a list of all the articles which are required for giving first aid. These would include gauze, cotton wool and bandages, a blade, soap, antiseptic lotion, acetyl salicylic acid, tablets, etc. See that your kit bag contains all these articles.

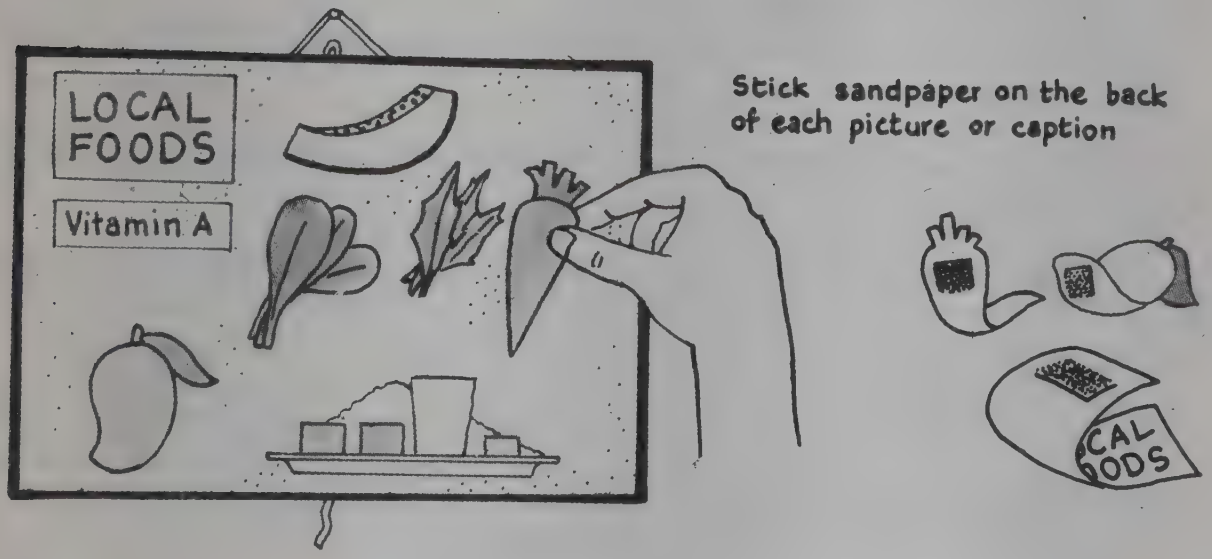
2. Find out what are the most common accidents in your area. Discuss with the community leaders what can be done to avoid such accidents, e.g. building parapets around wells. Discuss with your supervisor what facilities would help to deal with these cases more effectively, e.g. availatility of antivenin.

Appendix 1

PREPARING VISUAL AIDS

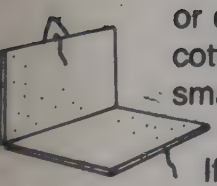
You can make your own visual aids for use in your health education programmes. Cut out pictures from old magazines and arrange them according to subjects, e.g. children, food, flowers, etc. Collect waste materials such as old calendars, scraps of cloth, flannel or khadi, coloured paper, cardboard, pieces of wood, etc. You will find the following equipment useful in making your aids: scissors, gum, pins, drawing pins, string, thread, needle, ruler, hammer, nails. sandpaper, black ink, paints, paint brushes, felt pens and crayons.

Given below are instructions for preparing a few simple aids. These aids are attractive and effective, especially in talking to mothers and children.



Flannelboard and flannelgraphs

This is a board with one side covered with flannel, khadi, rough cotton or woollen cloth on which pictures can be displayed. Flannelgraphs build up a story, message, or idea step by step. You can write your own script and prepare your own flannelgraphs which you can adapt to meet the needs of different groups.



How to make a flannelboard and flannelgraphs: Take a piece of plywood or cardboard about 70 cm × 85 cm. Cover one side with flannel or khadi (rough cotton or woollen cloth may also be used). To make it easy to carry, use two small boards so that the whole can be folded and tied up.

If a flannelboard is not available, the flannel or khadi can be draped on a blackboard.

The flannelgraphs are made of flannel, khadi, cotton or woollen cloth. If other materials are used, strips of coarse sandpaper (grade 2 or 3) are glued to the back of the pictures or captions so that they stick to the board. The flannelgraphs can be pictures drawn or cut out of magazines, posters or calendars, letters or shapes cut out of coloured cloth or paper, photographs, cord, or tape.

How to use a flannelgraph:

— Arrage the flannelgraphs in the proper sequence for use and number them on the back.

— Place the board where it can be seen by everyone. Be sure that the surface is well lighted. The bottom of the board should be at about the eye level of the viewers.

— Tilt the top of the board slightly backwards. This will help to keep the lannelgraphs in place.

— Apply the flannelgraphs with a slight downward pressure to help hold them in place.

Note: Flannelgraphs cannot be used if there is a strong breeze blowing.

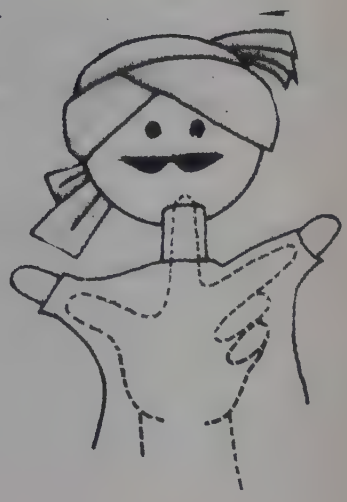
Puppets

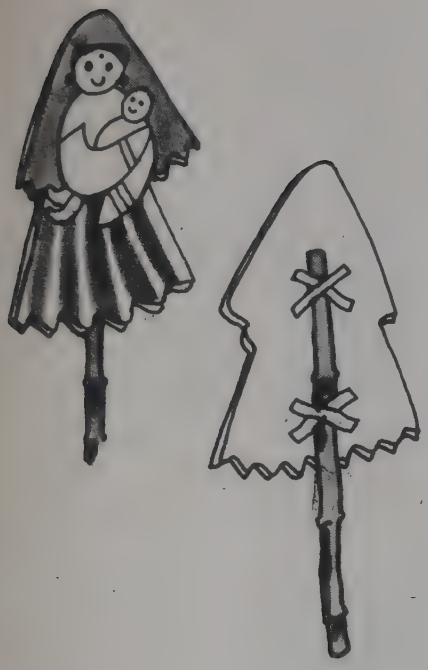
These are doll-like representations of people or objects. They are used to dramatize or illustrate specific situations. Puppets can be used to put an idea across in an interesting and vivid manner. For example, a carrot may tell the audience how it helps to prevent blindness.

Puppet shows should focus on a single message or action. The play should be short so that it holds the attention and interest of the audience.

A rubber ball with a hole at one end can be used for the head

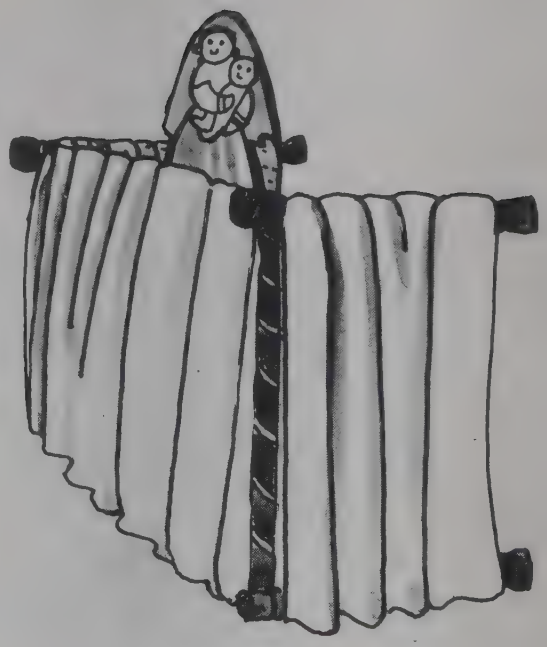
A stiff paper cylinder can form the neck





Figures cut from stiff paper and mounted on sticks make simple puppets

Use a charpoy draped with sheets as a stage



The puppets can be made of papier mache, paper, and bright coloured pieces of cloth. They may be glove puppets, or they may be worked by strings or sticks. The players must practise working the puppets and speaking the parts beforehand. A suitable stage has to be prepared depending on the type of puppets being used. For glove or stick puppets a simple stage can be made from an upright charpoy draped, with blankets or sheets.

Flash cards

Flash cards are a set of pictures that convey a message or an idea. They can be shown in a particular sequence or can be used separately.

Flash cards are useful in the field for talking to small groups. They can be pointed to as they are held before the viewers. They are relatively easy to make and are inexpensive.

How to make flash cards:

— Select the message to be given. Write the script. Decide on the pictures to illustrate the script.

— Use cards 28 cm × 21 cm.

— Prepare each card using cut-out pictures, drawings and captions.

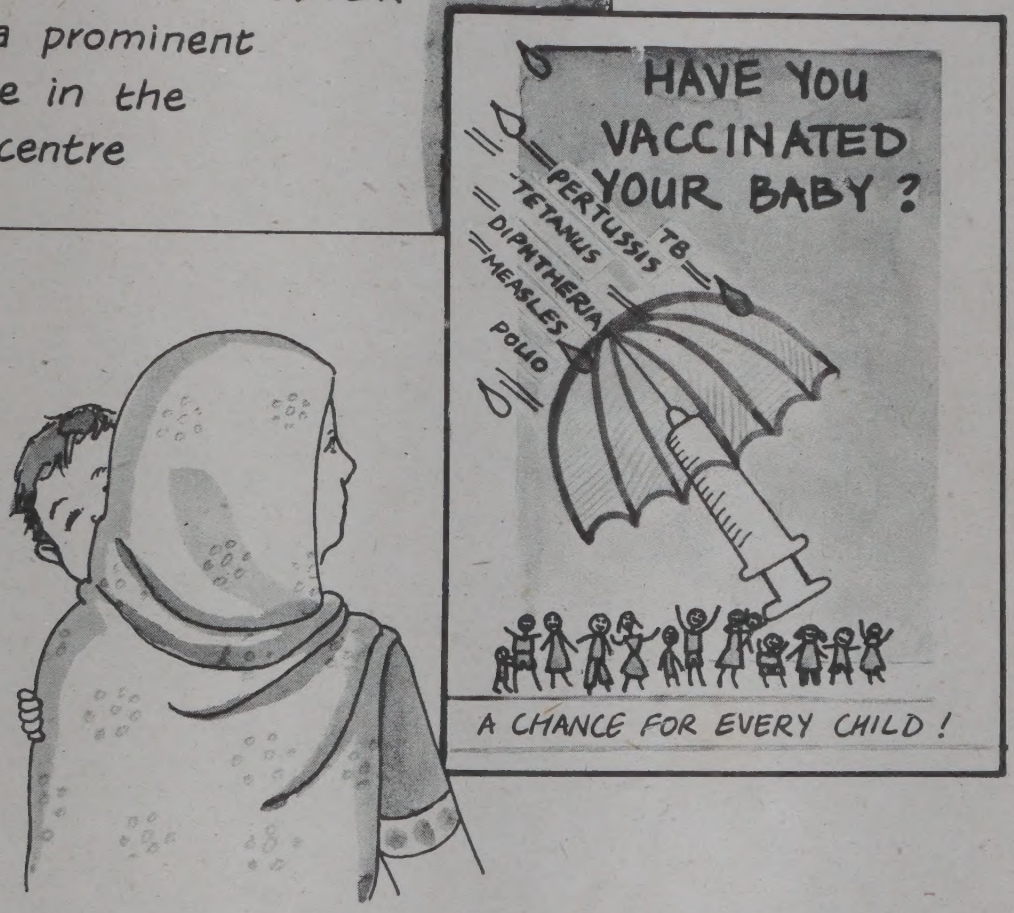
— Number each card and write the important talking points on the back of the card.

— Arrange the cards in the proper order.

Flip charts

Flip charts are made up of several sheets fastened together at one edge by staples, rings or clips. They are usually 50 cm × 85 cm in size.

The flip chart is hung on a board and the pages are flipped over as the ideas are put before the audience.

Other simple aids include posters, flip books, charts, and display boards. You can prepare all of these yourself and use them at your Subcentre or in the field.

DISPLAY THE POSTER in a prominent place in the subcentre